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Table of Contents

Editor's Comments 140

The Subscription Warships of 1798, by Frederick C. Leiner 141

Underway Replenishment, 1799-1800, by Tyrone G. Martin, CDR USN (Ret.) 159

The Navy's Campaign against the Licensed Trade in the War of 1812, by Michael J. Crawford 165

Some Notes on the Paper of the *Atlantic Neptune*, by Edwin B. Newman and Augustus P. Loring 173

Cliometrics: Its Application to Nautical Research, by Norman N. Rubin 179

Jack London in the Tradition of American Sea Fiction, by Bert Bender 188

Book Reviews 200

EDITOR'S COMMENTS

THIS issue of *The American Neptune*, unlike the last one, is concerned primarily with the American naval and maritime scene. It begins with three articles which deal with aspects of naval operations between 1798 and 1814 when an American naval tradition was painfully emerging. The first of them by Frederick C. Leiner, entitled 'The Subscription Warships of 1798,' tells the story of the interesting and ultimately unsatisfactory effort to build warships for the Navy during the undeclared war with France by making use of public subscriptions. The second by Tyrone G. Martin, called 'Underway Replenishment, 1799-1800,' tells how during this same period American ships, and specifically USS *Constitution*, were able to stay at sea for long periods of time by means of replenishment at sea—something we generally think of as a much later development. Finally we have Michael J. Crawford's 'The Navy's Campaign against the Licensed Trade in the War of 1812.' This article explains the problems faced by the Navy during the War of 1812 when it tried to interfere with American ships which, under U.S. license, were trading with their British naval enemies. Obviously the problem we face today of America's trade with enemies like Libya is not a new one on the maritime scene.

Then the mood changes with Edwin B. Newman's and Augustus P. Loring's research on the origins of the paper used in the famous *Atlantic Neptune* charts of the late eighteenth and early nineteenth century. They show that French and Dutch paper, which were superior, were used initially down to about 1780. After that, as protectionists sentiments and war intervened, Britain turned to suppliers of paper produced in Rome. This is followed by Norman N. Rubin's discussion in 'Cliometrics: Its Application to Nautical Research,' concerning the application and benefit of the scientific method, especially as regards to mathematics and statistics, to nautical research.

And finally, we complete the articles in this issue with an interesting piece by Bert Bender, entitled 'Jack London in the Tradition of American Sea Fiction.' In it Bender explains how much of London's maritime writings, and especially his *Sea Wolf*, is part and parcel of a long and faithful American tradition of writing about the sea for more than a century.

We then conclude with two items. One is to call the attention of maritime enthusiasts to a course to be given this fall by the editor of this journal at the Peabody Museum in Salem entitled, European Naval and Maritime History to 1860. Inquiries should be directed to the Maritime History Department at the Peabody Museum of Salem.

The other item is a salute to Dodge Morgan, that intrepid mariner in the mold of Joshua Slocum, who in his ship *American Promise* recently completed his remarkable round-the-world sailing adventure.

ARCHIBALD R. LEWIS
Salem, Massachusetts

The Subscription Warships of 1798

FREDERICK C. LEINER

I. INTRODUCTION

AMERICAN foreign relations were in tumult in the last decade of the eighteenth century. A small number of frigates had been authorized in 1794, but while they were being built, French privateers and British warships preyed upon neutral American merchant ships in United States coastal waters and on the open sea. The Jay Treaty of 1795 with Britain alienated the French government, which refused to stop its privateers from seizing American ships, seamen, and cargoes, and promulgated decrees aimed against American trade. In May 1797, President John Adams dispatched Charles Cotesworth Pinckney, John Marshall, and Elbridge Gerry to Paris as ministers plenipotentiary to resolve outstanding differences. Congress, which had earlier refused the President's recommendations for military preparations, awaited word from Europe.

The explosion of public anger throughout America following publication of the XYZ documents in April 1798 is hard to overstate even after nearly two centuries. The revelation that the American mission would not even be received by the French Directory without a *douceur* of £50,000 struck at the *amour propre* of the young republic. As war seemed imminent, the incensed reply of Pinckney to the repeated demands for bribe money, 'No! No! Not a sixpence!,' was transformed into the toast 'Millions for defense, but not a cent for tribute.' The toast became the touchstone for congressional action. Bill after bill was enacted to raise additional regiments, to organize a provisional army, to create a Marine Corps and a Navy Department, to rush to completion the three unfinished frigates from the 1794 authorization, and to authorize twelve smaller ships.

One of the numerous defense bills passed at the end of June 1798 provided that the navy might receive from private citizens up to twelve warships, donated as gifts or in exchange for 6 percent United States 'loan-certificates.' It was a curious program. While designed to tap the public outrage toward France, the law was in fact more of a reaction to, rather than a catalyst for, a chain of popular actions. In addition, such 'Navy Stock' had never before been floated to private American citizens. Nine warships were built under the Act, a massive increase of the tiny navy, by perhaps a thousand subscribers. Given the size and originality of the undertaking, questions of where such an idea arose and who advanced the money and for what reasons are immediately raised. The ships were built privately, with only modest supervision and coordination by the Secretary of the Navy. Although the subscription warships may have been built as well, as quickly, and for less money than government-funded warships, the idea of privately-financed, privately-constructed naval vessels was never repeated, despite the use of these ships in the Quasi-War against France, against the Barbary pirates, and in 1812.

Nevertheless, these questions have not been addressed and the subscription ship program has received only slight attention.[1] Yet the subscription warships were a central concern amidst the clamor over military preparations in 1798 and the program reveals much about the beliefs of a class of Americans regarding the role of the citizen in the early years of the republic.

1. For instance, Harold and Margaret Sprout, *The Rise of American Naval Power* (Princeton: Princeton University Press, 1939), passes over the subscription ships with one phrase. Of recent works, Craig L. Symonds, *Navalists and Antinavalists: The Naval Policy Debate in the United States 1785-1827* (Newark: University of Delaware Press, 1980) and William M. Fowler, Jr., *Jack Tars & Commodores: The American Navy 1783-1815* (Boston: Houghton Mifflin Co., 1984) each have two sentences on the 1798 subscription ships. The only work to discuss the program as a whole is Marshall Smelser, *The Congress Founds the Navy 1787-1798* (Notre Dame: University of Notre Dame Press, 1959) which covers the program in two pages. Only the frigate *Essex* of the subscription ships has received separate attention, most notably in Philip Chadwick Foster Smith, *The Frigate Essex Papers: Building the Salem Frigate 1798-1799* (Salem: Peabody Museum, 1974).

II. Origins

In the 1790s, American ports were booming. Shipbuilders took advantage of still-abundant local woods and favorable discriminating Federal tariffs[2] to build large numbers of merchant vessels. A master and a dozen hands would sail these hundred-foot vessels across the ocean, constantly trading for valuable cargoes. Ships were built for and owned by 'merchants'—individuals or small partnerships—who dominated the commercial activities of the ports, as importers and exporters for themselves or on consignment, and as bankers and brokers.[3] The long tentacles of trade went everywhere, bringing back cargoes that could bring great returns.[4]

The onset of the French Revolutionary War in 1792-1793 marked the onset of a period with great potential profits but great risks for American merchants. From 1792 to 1793, registered American shipping increased from 290,000 to 365,000 gross tons,[5] as merchants realized that the United States' neutrality allowed for great commercial opportunities with both camps.[6] Of course, the risk of loss multiplied as Royal Navy warships, operating under Orders-in-Council, and French privateers, operating on the slightest pretext, snatched up American ships. But as the worst excesses of the British were curbed by the Jay Treaty, French depredations became particularly galling. In 1797, with 35 percent ($24 million) of American exports bound for the West Indies, French privateers stopped 282 American merchantmen in the Caribbean alone, of which 188 were 'condemned,' thereby allowing their sale at auction.[7] The cost of insuring against such losses was staggering. In New England, the costs of insurance skyrocketed from 6 percent in 1796 to over 30 percent in 1798 for a voyage to the Caribbean.[8] However, in those days of close-knit seafaring communities the losses were personal as well as financial. In Salem, the Crowninshield merchant family resolved to 'send no more property to sea even if we get John [Crowninshield] home safe.'[9] Similarly, in March 1798, Robert Oliver, a leading Baltimore merchant, wrote his London agent that with the return of his vessel *Harmony,* as '[a]ll our risks are now nearly determined,' he did not 'intend to adventure any more until we see how we stand with the French.'[10] In a separate letter, he advised another merchant to 'lay by untill [*sic*] you see how matters are likely to turn. You must not . . . run risks for the sake of doing business' since the 'times are alarming & the People here seem disposed to do little or no business until a Change takes place.'[11]

In such a state, the initial publication of the XYZ documents on 4 April fell like a thunderclap. A wave of popular indignation and patriotism swept the nation. Federalist gentlemen sported the black cockade in the streets; an outpouring of petitions pledging fidelity rained in upon President Adams from mechanics, farmers, militias, even Dartmouth College students;[12] even in such states as Maryland, where the pro-French Republican Party was ascendant, the sentiment was vehemently anti-French.[13]

What is significant about this popular response was its spontaneity and depth. To a late twentieth-century American, where responses to contemporary outrages

2. The Acts of 4 July 1789 (1 Stat. 24), 20 July 1789 (1 Stat. 135), and 10 August 1790 (1 Stat. 180), established discriminating duties on foreign imports and on foreign-built or owned ships. Writers Program of the Works Progress Administration, *A Maritime History of New York* (Garden City, N.Y.: Doubleday, Doran, and Co., Inc., 1941), pp. 88-89.

3. John G. B. Hutchins, *The American Maritime Industries and Public Policy, 1789-1914,* Vol. LXXI of the Harvard Economic Studies, (Cambridge: Harvard University Press, 1941), p. 241.

4. K. Jack Bauer, 'The Golden Age,' in Robert A. Kilmarx, ed., *America's Maritime Legacy: A History of the U.S. Merchant Marine and Shipbuilding Industry Since Colonial Times* (Boulder, Colo.: Westview Press, 1979), p. 29, notes that the return of the first vessel from the Orient, *Empress of China,* returned a profit of 25 percent to its New York speculators. Ralph D. Paine, *The Old Merchant Marine* (New Haven: Yale University Press, 1919), p. 57, writes that the first Salem ship from Sumatra with peppers cleared 700 percent.

5. Hutchins, *Maritime Industries,* p. 225.

6. Writers Program, *Maritime History of New York,* p. 90. Registered U.S. tonnage out of New York went from 37,712 in 1790 to 71,693 in 1794, while the value of goods exported from New York went from $2.5 million to $5.4 million.

7. Michael A. Palmer, 'The Quasi-War and the Creation of the American Navy, 1798-1801' (Temple University unpublished Ph.D. dissertation, 1981), p. 82.

8. Robert G. Albion, William A. Barker, and Benjamin W. Labaree, *New England and the Sea* (Middletown, Conn.: Wesleyan University Press, 1972), p. 73.

9. P. C. F. Smith, *Frigate Essex Papers,* p. 21.

10. Stuart Weems Bruchey, *Robert Oliver, Merchant of Baltimore, 1783-1819,* series 74, no. 1 of the Johns Hopkins University Studies in Historical and Political Science (Baltimore: Johns Hopkins University Press, 1956), p. 188, citing Oliver Record Book 3, p. 206, Oliver to Kirwins, 10 March 1798.

11. Bruchey, *Robert Oliver,* p. 188, citing Oliver Record Book 3, pp. 208-9, Oliver to Lowry, 10 March 1798.

12. Page Smith, *John Adams* (Garden City, N.Y.: Doubleday & Co., Inc., 1962) vol. II, pp. 953-65, and Richard Buel, Jr., *Securing the Revolution: Ideology in American Politics 1789-1815* (Ithaca: Cornell University Press, 1983) p. 166.

13. L. Marx Renzulli, Jr., *Maryland: The Federalist Years* (Rutherford, N.J.: Fairleigh Dickinson University Press, 1972), pp. 193-94.

against American honor consist largely of pungent bumper stickers, the popular initiative in 1798 is refreshingly purposeful. The leading citizens in the towns formed committees of safety and collected arms. Old militia companies were mustered and newspapers were replete with advertisements calling for volunteers to join newly-organized units under local commanders.[14] The people did not have nor seem to need central direction to their efforts, nor could the minute War Department have provided close supervision at a time of horseback communications.

While the militia was turning out, the merchants of Newburyport, Massachusetts, resentful over their heavy losses,[15] decided that they themselves would build a warship for the Federal Navy. Precisely whose idea it was is unknown.[16] But leading Newburyport merchants met on 23 May 1798, where they resolved to open a subscription to build a twenty-gun warship in ninety days to be loaned to the United States. Two days later, the local paper reported the news without fanfare, in two sentences in the local news column.[17]

Within a week, a committee was appointed to direct the project, the details were set, and, almost as an afterthought, the local congressman was contacted. The Newburyport committee consisted of nine men, all of whom were shipmasters or merchants, and all of whom were Federalists. All ranked among Newburyport's wealthiest.[18] Several had sailed in or held shares in privateers during the Revolution,[19] so the idea of privately-built and privately-armed vessels was not alien to their thinking. Moreover, in an era of strictly delimited government, these very men had cooperated before on 'public' projects; they organized the Merrimack Bank in 1795, the Newburyport Woolen Manufactory in 1793, the Newburyport Turnpike, and the Merrimack River bridge.[20] It is true that these other ventures were for profit, and warships donated to the navy were not like privateers, since the subscribers would not get any return from prizes taken by a public ship. But the Newburyport merchants had an answer to that.

On 1 June 1798, the Newburyport committee wrote their congressman, Bailey Bartlett.[21] They announced their project to build a 355-ton ship, armed with 20 six-pound cannon, in ninety days. For this they would 'not accept of any further or other compensation from the government than an interest of six per cent per annum on the net cost of the ship and equipments, and a final reimbursement, at the convenience of the government, of the said net cost.' The 'best calculations' of the cost, 'if the utmost attention to economy and despatch can effect any thing,' would be $30,000. All they desired of Congressman Bartlett was that 'so far as the same shall appear necessary,' he would 'promote a provision whereby they may be enabled to carry their designs into execution.' Yet hoping that their example would 'lead to proportionate exertions in larger and wealthier towns,' the Newburyport committee suggested that 'any provision which may be thought proper and applicable to the case might be general.' Nor did the committee shrink from elaborating upon the perceived advantages of their scheme: the Federal government, deluged by 'so many calls for money,' might 'procure the means of defence without actual advances, perhaps with more promptitude and undoubtedly with consid-

14. Renzulli, *Federalist Years*, p. 194 and, for example, *Federal Gazette & Baltimore Daily Advertiser*, 28-30 June 1798.

15. John J. Currier, *History of Newburyport, Mass. 1764-1905*, (Newburyport: privately printed, 1906), pp. 239-40, notes that in the late nineteenth century, after many of such claims were unprovable, the holders of claims against French reparations filed for $682,000 for the loss of seventy-nine vessels.

16. Perhaps it was Moses Brown, a leading shipowner and merchant, who had commanded privateers in the Revolution, and who would serve on the Newburyport committee, contributing $1,500, and later command the Newburyport ship, *Merrimack*.

17. *Newburyport Herald and Country Gazette*, 25 May 1798, 3:2.

18. Currier, *Newburyport*, p. 112 and Benjamin W. Labaree, *Patriots and Partisans: The Merchants of Newburyport 1764-1815* (Cambridge: Harvard University Press, 1962), pp. 207-18. The committee consisted of William Bartlet, William Coombs, Dudley A. Tyng, Moses Brown, William P. Johnson, Nicholas Johnson, William Farris, Ebenezer Stocker, and Samuel A. Otis, Jr. Bartlet (1748-1841) was the richest man in Newburyport, owning wharves and a fleet of vessels. He was a Federalist and began textile manufacturing in New England. Coombs (1736-1814) was a Federalist merchant who had served as a captain of artillery in the Revolution and was President of the Newburyport Marine Society. Tyng was Collector of the Port (1795-1803). Brown (1742-1827) commanded the privateer *General Arnold* in the Revolution. A Federalist merchant, he was the town's second wealthiest citizen. William Johnson (1745-1802) was a Federalist merchant and shipmaster. His brother Nicholas was also a merchant. Farris (1753-1837) was a Federalist shipmaster and partner of Stocker in banking and importing. Stocker was formerly a shipmaster, and had organized the Merrimack Bank. Otis was a Federalist and the brother of Harrison Gray Otis, the Federalist congressman and leader from Boston.

19. Labaree, *Patriots and Partisans*, p. 212, notes that Farris commanded a letter-of-marque. Moses Brown was a privateer captain as well. Edgar Stanton Maclay, *Moses Brown Captain USN* (New York: Baker and Taylor Co., 1904).

20. Labaree, *Patriots and Partisans*, pp. 207-9, 217-18.

21. Bailey Bartlett (1750-1830) of Haverhill was a Federalist member of the House of Representatives from November 1797 to March 1801.

erably less expense than in the common mode of contracts.'[22]

While the idea of privately-subscribed warships may not have been radically new for men accustomed to combining private resources for public improvements, two factors distinguish the private funding of warships. First, there is the 'motive question'—whether the profit motive, which underlay building a turnpike, operated to produce warships. Whether a 6 percent return would be a profitable investment for merchant-capitalists in 1798 is an intriguing question, one analyzed below.[23]

The second distinguishing factor is one economists call the 'public goods' problem. Generally, modern economic theorists have seen government intervention in the economy necessary where individuals cannot produce goods or procure services efficiently. Government should intervene where 'externalities' prevent the private production of the good, i.e., where costs are borne directly by one individual or group but the benefits are shared by all, those who do *not* contribute 'free-ride' on the benefits, the recognition of which acts as a disincentive for producing the goods in the first place. Having baldly stated the economic axioms, it seems obvious to add that warships are typically cited as the prime example of public goods.[24]

What is so striking about Newburyport citizens financing a twenty-gun warship for the United States is that *if* they were not profiting on the 6 percent loan, they were acting in the face of the public good hypothesis. In the first place, although a bustling little port, Newburyport had little incentive to act first since it had only a fraction of the people, wealth, and ships affected by the French depredations. In addition, once completed and handed over to the Federal government, 'their' ship's benefits would not accrue to Newburyport directly but to all Americans or all American merchants generally.[25]

Yet Newburyport acted. And what is more, Newburyport did not act alone. The *Newburyport Herald and Country Gazette* of 25 May contained a two-sentence piece on the town's subscription ship project.[26] The next day, the Boston *Columbian Centinel* carried a dispatch from Newburyport that read in its entirety:

> The patriotic citizens of this town, determined to show their attachment to their own government, and to vindicate its commercial rights, have opened a subscription for the purpose of building a 20 gun ship; and loaning her to government. The sum proposed for building her is 20,000 dollars. MOSES BROWN, Esq. patriotically subscribed 1500 dollars.
> An example this, worthy [of] prompt imitation.[27]

Philadelphia's *Aurora & General Advertiser* reprinted the Newburyport article on 1 June;[28] *The Spectator* of New York copied the *Columbian Centinel* piece verbatim on 2 June;[29] far-off Charleston, South Carolina, reported the news two weeks later.[30] Other papers reported that the Newburyport subscription was filled within a week of its opening.[31]

Besides the editorial support of the *Columbian Centinel,* there were more direct admonitions. William Cobbett, the prickly publisher of *Porcupine's Gazette* in Philadelphia, after reporting on 9 June that the Newburyport merchants had filled their subscription and that contracts had been let, wrote

> [This is excellent. It proves that the true spirit of patriotism is gone forward, to the Northward at least—What our rich merchants are about here I know not. They have a good deal to lose; and they may take my word for it, that if they will not give a *little,* they will *lose all.*][32]

But the Porcupine (Cobbett) was preaching to the con-

22. Currier, *Newburyport,* pp. 111-12.

23. See pp. 154-55 below.

24. Paul A. Samuelson, *Economics,* 10th edition (New York: McGraw-Hill Book Co., 1976), p. 157, where 'battleships' is his first example of public goods. Samuelson writes: 'national defense, regarded as a commodity, differs completely from the case of a private commodity like bread. Ten loaves of bread can be divided up in many ways among individuals in a group; but national defense has to be provided *more or less automatically for all.* Many individuals will appreciate it, . . . but even among them, some would be willing to give up more bread, if necessary, for a given level of defense than others would. . . .
Could market laissez-faire, with no political voting and no coercion, give the group the national defense desired by the majority? Evidently not. If I knew I was going to benefit from the defense you had paid for, why should I come into the marketplace and exercise a dollar demand for it? Patriotism would of course motivate me, but it would show itself in the way my neighbors and I vote . . . rather than in our day-to-day private purchasing.' Ibid., pp. 159-60.

25. My analysis was suggested by Ronald H. Coase, 'The Lighthouse in Economics,' *Journal of Law and Economics,* 17 (October 1974): 357-76.

26. *Newburyport Herald and Country Gazette,* 25 May 1798, 3:2.

27. *Columbian Centinel,* 26 May 1798, 2:4.

28. *Aurora & General Advertiser,* 1 June 1798, 3:1.

29. *The Spectator,* 2 June 1798, 3:1.

30. *The City Gazette and Daily Advertiser,* 16 June 1798, 2:3.

31. See, for example, *Federal Gazette & Baltimore Daily Advertiser,* 9 June 1798, 3:1; *Aurora & General Advertiser,* 9 June 1798, 2:5. The *Norfolk Herald* went so far as to print the Newburyport committee's letter to Bartlett in its 21 June 1798 edition, 4:2.

32. *Porcupine's Gazette,* 9 June 1798, 3:4.

verted. In that same paper, the next column over, appeared the following advertisement:

III. Subscription Papers

The Merchants and Traders of this City, are requested to meet at the Coffee-House on Monday the 11th instant, at 12 o'clock, on business important to the Commerce of the State.[33]

The subscription ship program developed in two areas: in Congress, an enabling act was passed, and in the cities, subscription lists were signed. Historians generally have implied that the law engendered private action.[34] Instead, the reverse was true; the statute merely reflected what American citizens were doing on their own.

The legislative history of what would become the Act of 30 June 1798 is extremely spare.[35] On 6 June 1798, the Senate heard the first reading of a bill which merely authorized the president to accept 'any armed vessel built within the United States, and voluntarily offered to him for the use of the United States, to be employed in public service.'[36] On the 7th, the bill was read a second time but postponed.[37] The next day, it was committed.[38] When the bill emerged from committee on the 13th, a section two was added providing that the President might accept such vessels 'on such terms as he may deem beneficial to the public interest'; but the maximum number of ships accepted could be twelve, none 'of a less force than twenty guns, nine pounders.'[39] The bill, as amended, was read for a third time and passed 16-7 on 14 June.[40]

The background of the Senate bill cannot be known with certainty. Philadelphia knew of the Newburyport ship plan by 1 June when the *Aurora* carried the story. Perhaps Federalist Senator Benjamin Goodhue of Massachusetts, who played a leading role on the naval committee, wrote the bill. The letter of the Newburyport committee to Bartlett proposing the 6 percent loan was dated 1 June and could scarcely have arrived in Philadelphia before 5 or 6 June. Had Bartlett approached Goodhue with the loan plan, the Federalists, not the opposition Republicans, might have committed the bill to rewrite it as per the changed circumstances.[41]

The changed circumstances were not merely distant Newburyport's letter recommending a stock issue, for while the Senate committee weighed the bill, merchants in Philadelphia followed hard on the heels of the Newburyport example. At a meeting at the City Tavern on Monday, 11 June, the capital's merchants agreed to subscribe funds for two 20-gun ships; $23,000 was immediately pledged,[42] and a committee of five was set up to collect funds.[43] By noon the next day, $50,000 had been subscribed, $10,000 more than the total sum contemplated to be raised.[44] By noon on the 13th, $64,000 had been pledged,[45] and on Thursday, the 14th, the day the Senate enabling bill passed, the list topped $70,000.[46] Also, on the 13th the merchants restructured the committee to superintend the building of the ships to include leading citizens of Philadelphia.[47] By the

33. Ibid., 3:5.

34. John C. Miller, *The Federalist Years 1789-1801* (New York: Harper & Bros., 1960), p. 216, writes, 'Congress enacted a law. . . . Under this law, subscriptions were opened in the principal seaports.' Smelser, *Congress Founds the Navy*, p. 170, observes, 'Even before final passage, subscription funds were being raised in the chief seaports.' More egregious is Howard I. Chapelle, *The History of the American Sailing Navy* (New York: Bonanza Books, 1949), p. 157, who writes that the Secretary of the Navy 'was able to induce citizens of Newburyport to build the 24-gun ship *Merrimack*' with the law. Of course, the subscriptions were raised before the law; moreover, at that time, there was no secretary of the navy.

35. The Senate recorded votes only, not the discussion on the floor; the House debates were summarized or pruned down to the essentials.

36. Library of Congress Photo-Duplication Service, 5th Congress, 1797-1799 Senate Bills (microfilm), 1966.

37. Ibid.

38. Ibid.

39. Ibid.

40. *Annals of Congress*, 5th Congress, 2d Session (Washington: Gales & Seaton, 1851), 6:579.

41. Smelser, *Congress Founds the Navy*, p. 169, observes that the bill may have been committed by the Republicans to fix definitely the interest rate of the stock and to limit the gun ratings of the ships. See *Annals*, 6:578-79.

42. *Porcupine's Gazette*, 11 June 1798, 3:3.

43. The five were Joseph Anthony, David H. Coyngham, Daniel Smith, James Crawford, and Joseph Smith. *Federal Gazette & Baltimore Daily Advertiser*, 15 June 1798, 2:5.

44. *The Spectator*, 16 June 1798, 2:5. In Philadelphia, editor Cobbett was ecstatic, writing, 'I am happy to inform my readers through the United States, . . . that the meeting of the Merchant's [*sic*] in this city . . . is likely to be productive of the happiest effects. The *forty thousand* dollars . . . will very soon be raised. Some gentlemen came forward in the most noble manner.' *Porcupine's Gazette*, 12 June 1798, 3:2.

45. *Federal Gazette & Baltimore Daily Advertiser*, 16 June 1798, 3:2.

46. *Porcupine's Gazette*, 14 June 1798, 3:4.

47. The committee now consisted of Thomas Fitzsimmons, James Crawford, Joseph Sims, Daniel Smith, Thomas M. Willing, Capt. William Jones, and James Yard. *Columbian Centinel*, 23 June 1798, 3:1. Fitzsimmons (1741-1811) had raised a company of militia in the Revolution and was a merchant in partnership with George Meade. He had been a delegate to the Constitutional Convention and was a Federalist Congressman (1789-1795). He helped found both the Bank of North

close of business Friday, the Philadelphia subscription approached $80,000, helped by a pledge of $5,000 from William Bingham.[48] Before the end of June, $100,000 was subscribed.[49]

Other mercantile towns reacted similarly. By the 13th, a subscription paper was in circulation in Manhattan[50] with the reported purpose of purchasing 'immediately some stout ships who [*sic*] may guard our port from insult or danger, and occasionally brush away from our coasts those numerous pirates that every where infest them.'[51]

A subscription paper was also started in Baltimore. On Saturday, 16 June, a number of merchants met at the Exchange and set up a committee to collect subscriptions for two ships.[52] Although $30,000 was hoped for, by the close of the meeting $40,300 had been subscribed by the company present.[53] A Baltimore correspondent to a New York newspaper thought that the sum would multiply quickly, concluding, 'So far for the *doubtful city* of Baltimore. I admit a most extraordinary change has taken place amongst us, many who were reckoned in the first rank of Jacobins are among the highest subscribers.'[54] By Monday, the 18th, the Baltimore subscription was past $65,000;[55] by Tuesday, $76,100;[56] and by Thursday, $84,200.[57] One week into the subscription, $92,000 had been raised and, as in Philadelphia, the committee restructured to supervise the actual construction.[58]

The meteoric subscriptions collected in Baltimore and Philadelphia piqued the New Yorkers, whose own efforts had ground down. On 19 June, 'numerous and respectable' merchants and underwriters met at the Tontine Coffee-House. A committee of five was established to procure subscriptions and to direct construction, and $29,000 was immediately collected.[59] Two days later, $40,000 had been raised[60] and $66,000 by noon on the 27th,[61] but the New Yorkers searched to explain their slow accumulation. The *Spectator* praised the city 'at length rousing into action . . . Altho [*sic*] we are as yet considerably behind Philadelphia, and the spirited town of Baltimore; yet we advance Dutchmen like with a slow but sure pace.'[62]

The towns of the Old Dominion could also band together on a ship. On 22 June, Virginia newspapers noted

> To evince to the world their determination to support the Government of their own choice, against the daring attempt making to render it tributary, a meeting of the people of Pe-

America and the Insurance Company of North America and in 1798 was President of the Philadelphia Chamber of Commerce. Willing (1731-1821), a millionaire and former mayor and state supreme court justice, was President of the Bank of the United States. Jones (1760-1831), a Revolutionary War soldier and privateersman, was a shipmaster out of Charleston (1790-1793) and in 1798 was a merchant and head of the Board of Health. He was later a Republican Congressman and Madison's wartime Secretary of the Navy.

48. *Federal Gazette & Baltimore Daily Advertiser*, 18 June 1798, 2:2. Bingham (1752-1804) was a Federalist Senator from Pennsylvania. His wife (Thomas Willing's daughter) was the leader of Philadelphia society. Robert C. Alberts, *The Golden Voyage: The Life and Times of William Bingham 1752-1804* (Boston: Houghton Mifflin Co., 1969).

49. *The Spectator*, 27 June 1798, 4:3.

50. *The Spectator*, 16 June 1798, 2:3.

51. *Federal Gazette & Baltimore Daily Advertiser*, 16 June 1798, 3:1.

52. *Federal Gazette & Baltimore Daily Advertiser*, 16 June 1798, 3:3. The committee consisted of Robert Oliver, David Stewart, George Sears, John Stricker, and James Barry. Oliver (1757-1834) was a leading Federalist merchant and an original director of the Bank of Maryland. Sears (d.1810) was a merchant. Stricker (1758-1825) was a Federalist merchant in the firm of Stricker & Beatty and was a Baltimore militia commander.

53. Ibid.

54. *The Spectator*, 23 June 1798, 4:2, reprinting an extract of a letter from a 'gentleman in Baltimore.' 'Jacobins' were of course the Republicans, as seen through Federalist eyes.

55. *Federal Gazette & Baltimore Daily Advertiser*, 19 June 1798, 3:3. John O'Donnell contributed $4,000. O'Donnell was a leading merchant whose ship *Palas*, sent to Canton in 1785, was the first to return from the Orient. Hamilton Owens, *Baltimore on the Chesapeake* (Garden City, N.Y.: Doubleday, Doran & Co., 1941), p. 155.

56. *Federal Gazette & Baltimore Daily Advertiser*, 20 June 1798, 3:5.

57. *Federal Gazette & Baltimore Daily Advertiser*, 22 June 1798, 3:2.

58. *Federal Gazette & Baltimore Daily Advertiser*, 23 June 1798, 3:3. The new committee consisted of Jeremiah Yellott, David Stewart, Robert Oliver, George Sears, Robert Gilmor, William Patterson, Thomas Cole, Archibald Campbell, and Mark Pringle. Yellott was a merchant and navy agent at Baltimore and was a member of the first Board of the Bank of Maryland (1791). Gilmor (1748-1822) was a leading merchant. Patterson (1752-1835) supplied powder to Washington's army in 1775 and fought in the 1st Baltimore Cavalry at Yorktown. First President of the Bank of Maryland, he was a leading merchant, and a brother-in-law of Senator Samuel Smith of Maryland. His daughter later married Jérôme Bonaparte. Cole, Pringle (1758-1826), and Campbell were merchants, the last also an original director of the Bank of Maryland.

59. *The Spectator*, 20 June 1798, 3:2. The committee consisted of John Murray, George Barnewall, William Bayard, Isaac Clason, and John P. Mumford. Murray (1737-1808) was a leading merchant, President of the New York City Chamber of Commerce, and an original director of the Bank of New York. Bayard (1761-1826) with Herman LeRoy had a prominent mercantile firm and was President of the Bank of America. Clason and Barnewall were also merchants.

60. *Commercial Advertiser* (New York), 21 June 1798, 3:3.

61. *Commercial Advertiser*, 27 June 1798, 3:1.

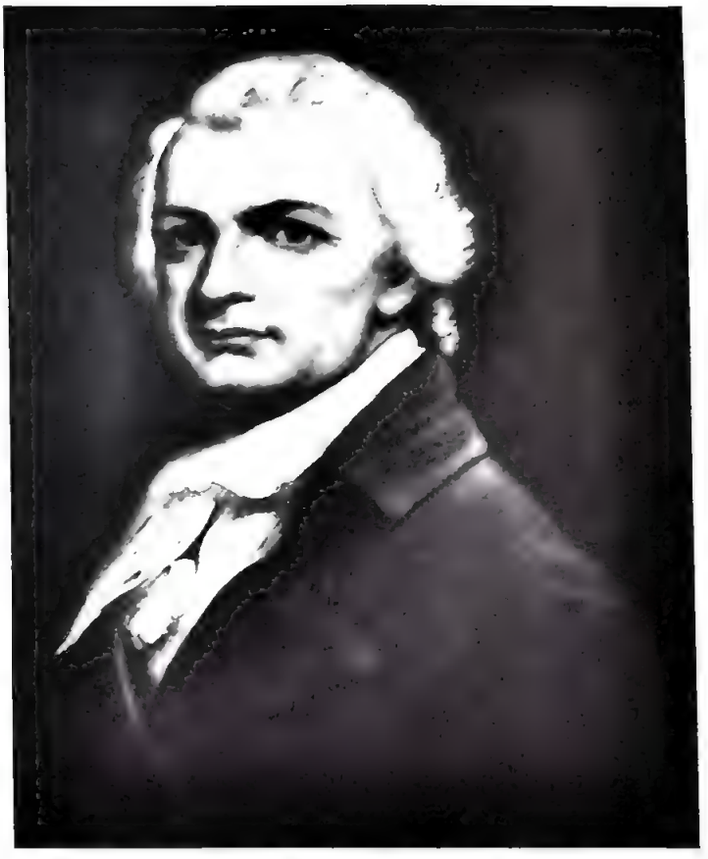
62. The newspaper concluded that with triple the population of Baltimore and given Manhattan's more exposed situation, the 'high spirits of our citizens, will never suffer it to be told in the historic page, that they were out done by Baltimore.' *The Spectator*, 4 July 1798, 3:1.

tersburg, is requested at J.R. Brewer's Tavern this Afternoon at 5 o'Clock, to consider the expediency of raising a sum of money by Subscription, which in conjunction with Richmond and Norfolk, may be sufficient to procure a *Vessel of Force*, to be loaned to the government, for the Public defence.[63]

It could not have been coincidental that the same evening, citizens of Richmond and Manchester (then separate towns) met in the Eagle Tavern in Richmond for the same purpose. Before the night was over, more than $14,000 was raised in Richmond and over $10,000 in Petersburg;[64] each city had also set up a coordinating committee.[65] Norfolk answered its sister cities' calls with a mass meeting in the town hall on 28 June which set up another committee[66] and immediately pledged $10,000.[67]

In diverse parts of the United States, thousands of dollars were being raised by citizens without government sanction or direction. The Senate bill did not pass before the Newburyport, Philadelphia, and New York subscriptions were well underway, and the Senate bill was not printed in newspapers until Baltimore had joined the list.[68] The House did not take up the bill before the Virginia towns had also entered the subscription frenzy.

In an era when a skilled ship carpenter earned a dollar and a half per day in wages and a common laborer a mere dollar,[69] the sums raised practically overnight to build warships for the navy were extraordinary. Yet not only was there no legislative approval but also there was



Portrait of Benjamin Stoddert, Secretary of the Navy. (Courtesy of the National Archives, Washington, D.C.)

no Executive Department role. There could be little executive supervision without an executive but the first Secretary of the Navy, Benjamin Stoddert, only entered into his duties at 139 Walnut Street, Philadelphia, on 19 June.[70]

The most astounding feature, however, was not the huge sums raised by citizen initiative, nor even the lack of political coordination. It was instead the undertaking itself: the decisions by private citizens to build warships for a navy that only sent its first vessel to sea in May 1798.[71] That the United States Navy would be a success was not some ineluctible truth in the summer of 1798. The navy's three large frigates, *Constitution*, *United States*, and *Constellation*, had never yet been to

63. *The Norfolk Herald*, 25 June 1798, 2:2.

64. *Aurora & General Advertiser*, 4 July 1798, 2:3.

65. The Petersburg committee included James Campbell, Watson Stott, William Haxhall, Robert Colquhoun, and Christopher M'Connico. *Norfolk Herald*, 28 June 1798, 3:3. The Richmond committee was Robert Gamble, Bushrod Washington, William Mitchell, James Brown, and Cornelius Buck. *Aurora & General Advertiser*, 4 July 1798, 2:3. Washington (1762-1829), nephew to George Washington, was a private in the Continental army and in 1798 a Richmond lawyer.

66. The Norfolk committee consisted of Robert Taylor, William Pennock, Moses Myers, Thomas Willock, and Warren Ashley. *Norfolk Herald*, 30 June 1798, 3:2. Taylor was a Federalist lawyer. Pennock & Myers was a leading mercantile firm. Pennock was navy agent in Norfolk as well. Myers was one of the first Jews of Norfolk.

67. *Federal Gazette & Baltimore Daily Advertiser*, 30 June 1798, 2:5.

68. The Senate passed the bill on 14 June at which time the Philadelphia subscription was over $70,000, Newburyport's was completed, and New York had raised $25,000. By the time the bill was printed in New York (the *Commercial Advertiser* printed it on 19 June), Baltimore had subscribed $76,100.

69. Charles C. Bassett, 'The Career of the Frigate Essex,' *Essex Institute Historical Collections* 87 (Jan. 1951): 17, cites receipts from the Essex papers as to the costs of labor in building the Salem subscription ship.

70. *The Spectator*, 27 June 1798, 2:3. Before Stoddert's arrival, naval affairs, nominally under the War Department, were in chaos.

71. *Ganges*, a converted merchant ship, put to sea then. Fletcher Pratt, *The Navy: A History* (Garden City, N.Y.: Garden City Publishing Co., 1941), p. 90.

sea.[72] There was no naval tradition, no bipartisan political support for a navy, and even some question as to how a republican nation might discipline its sailors.[73] Yet the mercantile towns had the audacity to build warships to take on the French Navy, which at that pre-Aboukir Bay, pre-Trafalgar day, was second in size and glory only to the Royal Navy. These American merchants were not of faint heart. One New York newspaper stated the warships the people were building,

> when combined, will constitute a force of some magnitude; and altho [*sic*] in the estimation of insolent European powers they may be regarded with a sneer, they will, nevertheless, be managed with the energy of hardy FREEMEN, who know the *motives* of their duty, and who possess a spirit unaccustomed to being cowed or conquered.[74]

By the time the House of Representatives took up the Senate bill to accept up to twelve warships from the people, five subscriptions were being filled in seven towns. In the House, Albert Gallatin, the Swiss-born Republican leader from Pennsylvania,[75] had already succeeded in stemming Federalist military preparations.[76] Yet to the subscription ship bill, Gallatin's real concern was to specify statutorily the terms of the loan. He therefore moved to add a clause to the bill specifying a 6 percent interest rate. The Federalists acceded to such a proviso and to language allowing some subscription ships to mount fewer than twenty guns. As amended, the bill was approved without recorded vote on 25 June.[77] The Republicans were satisfied that even at 6 percent interest, no one would subscribe to make money: as Gallatin put it, such certificates 'would not sell for 20s. in the pound.'[78] The Senate accepted the House amendments,[79] and President Adams signed the bill into law on 30 June.[80]

The merchants of Boston decided to act before the bill was enacted. A ship subscription was opened on 27 June '*in the Chamber over* Taylor's Insurance-Office.'[81] Within hours, the thirty-four present subscribed $75,000.[82] Two days later, the fund stood at $115,250, more than any other city to date.[83] On 2 July, subscriptions reached $127,000, without any active solicitation.[84] As in the other cities, Boston's merchants chose a distinguished group of their own to act as its committee.[85]

With all the money being raised, Mrs. Adams had reason to exult to her son John Quincy Adams, 'We shall have a navy spring up like the gourd of Jonah.'[86]

72. Henry E. Gruppe, *The Frigates* (Alexandria, Va.: Time-Life Books, 1979), p. 27.

73. Eugene S. Ferguson, *Truxtun of the Constellation* (Annapolis: Naval Institute Press, 1982), pp. x, 145.

74. *Commercial Advertiser*, 30 June 1798, 2:4. Noah Webster was the publisher.

75. Albert Gallatin (1761-1849) served in the Revolutionary War and was Republican floor leader in the House (1795-1801). Later, he served as Treasury Secretary to Jefferson and Madison, and as peace commissioner at Ghent to end the War of 1812.

76. Abigail Adams wrote of Gallatin that 'If it were not for that specious, subtle, spare Cassius, that imported foreigner, the House of Reps would proceed with energy and act with decision.' Page Smith, *John Adams*, 2:967, cites AA to Tufts, 8 June 1798.

77. *Annals*, 7:2033-34.

78. *Annals*, 7:2034, speech of 23 June 1798. Of course, what Gallatin means is that the certificates were not 20/21 of the value of the money advanced.

79. *Annals*, 6:590-92, 28 June 1798.

80. The Act had five sections. Sections four and five dealt with the manning and officering of the vessels. Section three provided that the President might accept any number of vessels donated to the navy. Section two detailed how many ships of each gun rate the President might accept in exchange for stock: four of at least thirty-two guns; three might mount twenty to twenty-four guns; and five were to have no more than eighteen guns. (These numbers are not actually in the Act itself, but are the correct figures when read in tandem with an earlier act). Section one authorized the President to accept 'the proposals of any persons who shall offer and undertake to complete, provide and deliver, to the use, and upon the credit of the United States, . . . any vessel or vessels, . . . of a model and size which he shall approve, and armed and equipped, or suitable to be armed for the public service.'

Two provisos to section one limited the loan-certificates to a 6 percent interest rate and the number of subscription ships to twelve. Act of 30 June 1798, chp. sixty-four, 1 Stat. 575 (1845).

The 6 percent figure was first suggested in the Newburyport committee's letter of 1 June. It is possible, however, that the statutory scheme owed something to foreign example. Not only had British Prime Minister Pitt in December 1795 had to adopt the then-revolutionary procedure of applying directly to the people for the Loyalty Loan (issued at £112 10s. per £100 of stock bearing a 5 percent interest rate) but also, in January 1798, the British Parliament turned to voluntary contributions to pay for defense expenditures. Reportedly, £2.5 million were contributed. Arthur Bryant, *The Years of Endurance 1793-1802* (London: Collins, 1944), pp. 166, 217-18. See Act of 38. George III, chp. eight (30 Dec. 1797) in *Statutes at Large of England and of Great Britain* (London: Eyre and Strahan, 1811), 19:540.

81. *Columbian Centinel*, 27 June 1798, 3:2.

82. *The Spectator*, 4 July 1798, 1:3. Wiliam Phillips (1750-1827), a prominent Federalist merchant, subscribed $10,000.

83. *Columbian Centinel*, 30 June 1798, 2:4.

84. *Federal Gazette & Baltimore Daily Advertiser*, 10 July 1798, 2:2, printing an extract of a letter from Boston.

85. Thomas Davis, John Coffin Jones, Henry Jackson, William Parson, David Sears, Thomas H. Perkins, and Gorman Parsons. *The Spectator*, 7 July 1798, 2:4. Jones founded the Massachusetts Fire Insurance Co. (1785). Jackson was a former navy agent and land speculator with Henry Knox. David Sears was a merchant. Perkins (1764-1854) was a Federalist merchant and philanthropist who served eight terms in the state senate.

86. Page Smith, *John Adams*, p. 967 and Ralph Adams Brown, *The*

But warships do not come into existence by whim. It was therefore felicitous that on 19 June Benjamin Stoddert became Secretary of the Navy. Among the number of actions demanding his attention, high priority was given to making warships out of paper subscriptions.

IV. The Ships

The Act of 30 June authorized four subscription ships to mount thirty-two guns or more, and Secretary Stoddert was determined to get them. Smaller rates could be built quickly and in great numbers. Frigates were a major undertaking. The United States had three afloat and three more under construction due to the 1794 authorization, but four more from merchants would be a tremendous augmentation.

The day before the House approved the bill, Secretary Stoddert wrote to Fitzsimmons of the Philadelphia committee, noting his hope that Philadelphia, Baltimore, New York, and Boston would provide the four frigates. He asked that the Philadelphia merchants' ship be 'as large as the Contribution will afford, & not less than 32 Guns' and preferably thirty-six or forty-four 'even if to build so large a Vessel, some public Money should be required.'[87] The following day, he wrote in a similar vein to Yellott, the navy agent in Baltimore, and to the New York committee, urging frigates on both cities in lieu of their plans for twenty-gun sloops. To stoke the inter-city rivalries, he added somewhat prematurely that the Philadelphia merchants were about to begin a thousand-ton, forty-four-gun frigate.[88] On the 30th, he sent the New York committee the principal dimensions for various sizes of frigates.[89] He tried the same approach with the Boston committee.[90]

The Philadelphia committee agreed to build a forty-four-gun frigate, and the keel was laid in mid-July on the same stocks where *United States* had been built.[91] The New York merchants laid the keel of a thirty-six gun frigate on the last day of July.[92] Only Baltimore's committee balked, insisting to Stoddert's despair, on building two sloops.[93] The ships that each city would build was a matter of some confusion and anxiety to Stoddert, and on 31 July he had to report to the president that uncertainty.[94]

Stoddert wanted work to begin immediately. Before the Act was passed, he wrote the New York committee to make preparations to begin, since the 'Vessel may be wanted before She can be furnished.'[95] Stoddert believed eighteen-gun sloops could be at sea in three months and that the frigates could be launched by April 1799 (in nine months) if no effort was spared.[96] Plucky Newburyport, which now basked in the success of its subscription ship idea,[97] was the first town to lay down a subscription ship keel, which it did on 9 July, hoping that the ship would be completed on 1 October.[98]

The Secretary's role in building ships was limited. He sent out dimensions for the frigates. He also arranged for supplies the towns could not readily procure: copper spikes and nails,[99] kentledge,[100] copper sheathing and

Presidency of John Adams, (Lawrence: University Press of Kansas, 1975), pp. 73-74.

87. Dudley W. Knox, ed., *Naval Documents Related to the Quasi-War Between the United States and France*, 6 vols. (Washington: Government Printing Office, 1935-1938), 1:143, Secretary of the Navy to Fitzsimmons, 26 June 1798.

88. *Naval Documents*, 1:145, Secretary of the Navy to Yellott, 27 June 1798 and Secretary of the Navy to Murray et al., 1:146-47, 27 June 1798.

89. *Naval Documents*, 1:153, Secretary of the Navy to Murray et al., 30 June 1798.

90. *Naval Documents*, 1:170, Secretary of the Navy to Sears, 6 July 1798.

91. *Porcupine's Gazette*, 16 July 1798, 3:2. When launched, the ship would rate thirty-eight guns.

92. *Porcupine's Gazette*, 1 August 1798, 3:4.

93. *Naval Documents*, 1:170, Secretary of the Navy to Stewart, 6 July 1798, and 1:173, Secretary of the Navy to Yellott, 6 July 1798. Stoddert wrote Yellott that 'I cannot relinquish the hope that my Native State, not less Federal, & not less earnest to defend the rights of the Country, than any in the Union, will afford one of these [frigates].'

94. *Naval Documents*, 1:262-63, Secretary of the Navy to Adams, 31 July 1798. Stoddert reported that the Baltimore merchants would build two eighteen-gun sloops and that Salem and Charleston might provide two more. The twenty-four-gun ships he credited to Boston, 'Newbury,' and Richmond/Petersburg/Norfolk. Philadelphia was to supply a forty-four and New York a thirty-six, but 'I am at a loss at present to Judge, from whence [another] Ship of 32 Guns or upwards will be obtained.' Stoddert's expectations had little relation to the ultimate result.

95. *Naval Documents*, 1:146-47, Secretary of the Navy to Murray et al., 27 June 1798.

96. *Naval Documents*, 1:262-63, Secretary of the Navy to Adams, 31 July 1798.

97. In a piece entitled 'UNADULTERATED PATRIOTISM,' a writer boasted that it 'will not soon be forgotten that the subscriptions for loaning ships were begun by the citizens of this town. In *energetic patriotism* they will yield to no metropolis on the Continent.' *The Newburyport Herald and Country Gazette*, 6 July 1798, 2:4.

98. *Columbian Centinel*, 11 July 1798, 3:1 and Currier, *Newburyport*, p. 112.

99. *Naval Documents*, 1:242-43, Secretary of the Navy to Oliver, 26 July 1798.

100. *Naval Documents*, 3:97-98, Secretary of the Navy to Crafts, 26 April 1799. Kentledge was iron used for ballast.

cannon.[101] The Federal Government, as a result, assumed up to half the cost of each ship.[102] Naval agents at each site were to prevent delays, but Stoddert could not keep abreast of developments.[103] The merchant committees let the contracts, chose the builder, and oversaw the construction.[104]

Stoddert refused to give up on a fourth thirty-two-gun frigate. He put out feelers to prominent merchants in Charleston, Providence, and Salem.[105] Public zeal for subscriptions remained to be tapped: five Salem merchants raised $16,000 in opening a subscription on July 16,[106] and seventeen Burlington County, New Jersey, citizens, most of whom were farmers, raised $6,300 on 21 July.[107] Perhaps fired by Stoddert's letter, Charleston citizens met at Williams' Long-Room on 27 July and appointed a committee to receive subscriptions 'at their respective counting-houses.'[108] Upon finding that $100,000 was raised in one week, including at least $13,000 from Beaufort, more citizens were added to the committee to consider building a thirty-two-gun frigate in lieu of the twenty-gun sloop originally contemplated.[109] In the end, a 550-ton, twenty-four-gun frigate design was chosen, perhaps for fear that a larger ship could not cross the bar of Charleston harbor.[110] Stoddert concurred and sent drafts and advice to yet another committee, this one set up to supervise the building.[111]

The Salem subscription, which had been inactive for a month,[112] was revived by Senator Goodhue and Secretary of State Pickering, both of Salem.[113] By mid-October, $74,700 had been raised and a committee named to build a thirty-two-gun frigate.[114]

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101. *Naval Documents*, 1:330-31, Secretary of the Navy to Crafts, 23 August 1798 and 2:97, Secretary of the Navy to Sears, 18 December 1798.

102. P. C. F. Smith, *Frigate Essex Papers*, p. 63, and Dudley W. Knox, ed., *Personnel and Ships Data*, supplement to *Naval Documents Related to the United States Wars with the Barbary Powers* (Washington: Government Printing Office, 1945), pp. 68, 71, 74, 75, 76, for the total costs of preparing the five subscription frigates for sea. *Boston* cost $119,570. *Essex* cost $139,362. *John Adams* cost $113,505. *New York* cost $159,639. *Philadelphia* cost $179,369.

103. For example, *Naval Documents*, 2:97, Secretary of the Navy to Sears, 18 December 1798. Stoddert wrote: 'Be so good as to inform me when it is thought the Ship will be Launched & whether it be intended to furnish the Anchors compleat [*sic*], Rigging & two Suits of Sails, by the Merchants, in Short I wish to know as nearly as may be, the exact point at which they mean to Stop, that I may make arrangements in time, for the rest.'

104. Chapelle, *Sailing Navy*, p. 158.

105. *Naval Documents*, 1:231, Secretary of the Navy to Simons, 21 July 1798, 1:277-78, Secretary of the Navy to Brown, 7 August 1798; and 1:339, Secretary of the Navy to Crowninshield, 25 August 1798.

106. *Federal Gazette & Baltimore Daily Advertiser*, 24 July 1798, 3:3.

107. *The Spectator*, 28 July 1798, 1:4. The New Jersey gathering is significant in that it was the only drive emanating from a rural area and because its rationale was fully published. The New Jerseyites believed the United States had 'sought *peace* by every concession short of surrender' and that any war would be defensive. A French victory would overthrow the Christian religion for a *'Philosophical Atheism'* but naval preparation might deter war. *The Spectator* concluded 'the FARMERS are resolved to support a *navy* which may protect their labors against the rapacity and lawless depredations of the French pirates. *The* Farmers *are resolved never to hold their plantations as* tenants at will to the beggarly sansculottes.'

108. *The City Gazette and Daily Advertiser* (Charleston), 26 July 1798, 3:3 and 30 July 1798, 3:2. The collection committee included William Crafts, Adam Gilchrist, Thomas Morris, David Alexander, Robert Hazlehurst, Adam Tunno, and James Miller. Crafts (1763-1820) was a merchant, as were Gilchrist and Tunno.

109. *City Gazette and Daily Advertiser*, 2 August 1798, 2:4 and 4 August 1798, 3:1. The new members were General William Washington, Thomas Pinckney, Col. Glaze, Major James Ladson, Capt. William Marshall, Capt. James Sinckler, Henry Laurens, Jr., William Allen Deas, John Bryan, John Gibbes, Joseph Jenkins, and William Price. Washington, a cousin of George Washington, was a Revolutionary War officer and in 1798 a militia commander. Pinckney had served as minister to Britain and in 1796 ran on the Federalist ticket for Vice President of the United States. Ladson was a friend of Pinckney's, also a Middle Temple lawyer, and had been an officer in the Revolution. Laurens ran as Federalist candidate for governor of South Carolina in 1796, only to lose to his brother-in-law, Charles Pinckney III, who entered the race as a Republican. Deas was Thomas Pinckney's secretary in the London embassy.

110. Chapelle, *Sailing Navy*, p. 167 and *City Gazette and Daily Advertiser*, 11 August 1798, 3:4.

111. *City Gazette and Daily Advertiser*, 14 August 1798, 3:2. The committee consisted of Thomas Morris, Henry Laurens, Jr., William Crafts, Nathaniel Russell, and Adam Tunno. Interestingly, the Charleston subscribers were the only ones to offer their ship as a donation, as per section three of the Act of 30 June. Contrary to Chapelle, *Sailing Navy*, p. 154, who asserts that 'the outright gift of ships was to be encouraged' and that stock would only be offered 'in the event the first quota was not filled,' Stoddert wrote the Charleston committee that given the authorized but unfilled provision for another ship, 'The President cannot think of taking greater advantage than necessary, of the generous Spirit of the Citizens of Charleston,' and accepted the vessel only in exchange for the 6 percent certificates. *Naval Documents*, 1:330-31, Secretary of the Navy to Crafts, 23 August 1798.

112. P. C. F. Smith, *Frigate Essex Papers*, pp. 23-27, believes that the Crowninshield family's offer of their ships to the navy deterred the subscription effort. While this may be true, it is too much to say that Stoddert or Adams could not legally have accepted such vessels on the grounds that the statute provided that the vessels had to be built for the navy, and not merely been converted. While Stoddert wrote this to the Crowninshields, he seemed to have no difficulty in accepting the Virginia cities' subscription brigantine, *Richmond*, which was purchased from Moses Myers of the Norfolk committee. *Naval Documents*, 1:425, Secretary of the Navy to S. Barron, 19 September 1798.

113. P. C. F. Smith, *Frigate Essex Papers*, pp. 27-30.

114. P. C. F. Smith, *Frigate Essex Papers*, pp. 31, 40. E. H. Derby

Before Salem had closed its subscription, on 12 October the twenty-four-gun U.S.S. *Merrimack* of Newburyport was launched, only seventy-four working days in the making.[115] With New England exactitude, the Newburyport committee presented for certificates its subscriptions of $41,158.639.[116] *Merrimack* put to sea on 9 December, the only subscription warship completed in 1798.[117]

But the following May, with President Adams himself attending, the thirty-two-gun frigate *Boston* was launched from the North End, built with Paul Revere-made copperbolts and spikes.[118] In June, Baltimore's eighteen-gun sloop *Maryland* slid down the ways at Fell's Point,[119] only two days before Charleston's frigate *John Adams* entered the water.[120] That same month, Baltimore's other sloop, *Patapsco,* was launched.[121] These five, and the purchased *Richmond,* were the subscription warships to see action in the naval war against France.[122]

The sloops were engaged primarily in convoy duty, although *Merrimack* took four French vessels,[123] and *Patapsco* bombarded the French batteries in the Outrabande area of Curaçao from half-pistol shot range.[124] *Boston* made a half-dozen captures and in one of only three frigate actions in the war pummeled the twenty-four-gun corvette *Le Berceau* into a wreck.[125]

The other frigates were finished too late to see action in the Quasi-War. Salem's thirty-two-gun *Essex* was launched in September 1799, the thirty-six-gun *Philadelphia* in November, and the thirty-six-gun *New York* in April 1800.[126]

According to extant evidence, the subscription frigates were excellent ships. *Boston* was so fast that her captain wrote, 'We see nothing which we do not overtake.'[127] Captain Preble of the *Essex* wrote after his ship's maiden voyage that *Essex* was 'a good sea-boat, and sails remarkably fast. She went eleven miles per hour, with top gallant sail set and within six points of the wind.'[128]

The sloops, however, had problems. Doubts were expressed about *Merrimack;*[129] the two Baltimore sloops, though fast and handsome, were unfortunately designed with a low gundeck, which made their batteries 'useless in blowing Weather';[130] and *Richmond,* by comparison with ships of her rate, was inferior 'in those points which promise fast sailing and rather inferior in size.'[131] To be fair, however, the sloops had been rushed

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and William Gray, Jr., each subscribed $10,000. The committee consisted of Gray, John Norris, Jacob Aston, Capt. Benjamin Hodges, and Ichabod Nichols. Gray (1750-1825) was perhaps the wealthiest man in the United States. A leading merchant, he had been an officer in the 1st Essex County Regiment of Militia in 1776. Norris (1751-1808), a merchant and distiller, was a leading benefactor of Andover. Ashton (1744-1829) was President of the Salem Marine Insurance Co. Hodges (1754-1806) was a shipmaster and merchant. Nichols (1749-1839) was Hodges' partner.

115. Currier, *Newburyport,* p. 114 and *Naval Documents,* 1:525-26, reprinting an article from *Claypoole's American Daily Advertiser,* 22 October 1798.

116. *Naval Documents,* 3:53, Winder to Bartlet et al., 15 April 1799. This sum caused aggravation to Winder, the Accountant of the Navy, since certificates could not be written in denominations of less than one hundred dollars. Winder paid out the fifty-eight dollars and change in money.

117. Currier, *Newburyport,* p. 114 and Maclay, *Moses Brown,* pp. 132-36.

118. *Naval Documents,* 3:223-24, reprinting article from *Massachusetts Mercury,* 21 May 1799.

119. 3 June 1799. *Naval Documents,* 3:296-97, reprints article from *Federal Gazette & Baltimore Daily Advertiser,* 4 June 1799.

120. 5 June 1799. *Naval Documents,* 3:308, reprints article from *Coliseum Museum & Savannah Advertiser,* 11 June 1799.

121. 20 June 1799. *Naval Documents,* 3:377, reprints article from *Federal Gazette & Baltimore Daily Advertiser,* 20 June 1799.

122. Chapelle, *Sailing Navy,* p. 158 omits *John Adams* from this list. *Essex,* completed before the war was over, did convoy merchant ships around Cape Horn, and *Philadelphia* and *New York* served in the Caribbean.

123. Russell L. Jackson, 'The Seafaring Browns,' *Essex Institute Historical Collections* 80 (Jan. 1944): 59.

124. 22 September 1800. The incident is recounted in *Naval Documents,* 6:372, reprinting article from *Connecticut Journal* (New Haven), 26 November 1800.

125. 12 October 1800. *Naval Documents,* 6:456-58.

126. *Naval Documents,* 4:239 (describing the launch of *Essex* on 30 September 1799), reprinting an article from the *New Hampshire Gazette,* 8 October 1799; 4:457-58 (describing the launch of *Philadelphia* on 28 November 1800), reprinting an article from *Claypoole's American Daily Advertiser,* 29 November 1799; and 5:443 (describing the launch of *New York* on 24 April 1800), reprinting an article from the *Daily Advertiser,* 25 April 1800.

127. *Naval Documents,* 4:191, Little to editor, 16 September 1799, reprinting letter from the *New Hampshire Gazette,* 16 November 1799.

128. *Naval Documents,* 4:579, Preble to Waters, 29 December 1799. It was only later, after subsequent commanders changed the ship's top-hamper and over-armed her that *Essex*'s speed was ruined. Samuel Eliot Morison, *The Maritime History of Massachusetts 1783-1860* (Boston: Northeastern University Press, 1980) p. 100, is incorrect on this point.

129. *Naval Documents,* 3:168, Secretary of the Navy to Higginson, 11 May 1799. Stoddert wrote that Captain Barry's opinion was 'that she is not so fine a Vessel as was expected,' and had been built to carry only two months' provisions.

130. *Naval Documents,* 3:507-08, Secretary of the Navy to Yellott, 17 July 1799. Also instructive about these sloops are the letter of Buchanan to Pickering, 4:159-60, 5 September 1799, and the letter of Neale to Burrows, 4:441-42, 22 November 1799.

131. *Naval Documents,* 4:65-66, Secretary of the Navy to Higginson, 12 August 1799.

to completion. *Merrimack* was built in three months, and faintly presaging the efforts on the aircraft carrier *Yorktown* before the Battle of Midway a century-and-a-half later, *Patapsco* was ordered to sea with the carpenters still aboard.[132]

In proposing an enabling act, the merchants of Newburyport had pointed to the Treasury's financial straits and to the savings of time and money as the advantages of privately-subscribed, privately-built ships. All told, $711,700 of Navy Stock was issued[133] in a year when the total expenditure of the United States Government was $7,607,000.[134]

Whether the subscription warships saved time and money is a more difficult question. One prominent historian suggests that they did not. According to Howard Chapelle, the 'only drawback' to the subscription warships was delay, since 'it required much time to raise funds for such a purpose in a community and to get the ships started. As a result, the frigates built by both ports financially able to handle such construction was slow in being completed.'[135] This statement is certainly too sweeping. In every city except Salem, funds were raised in a matter of days or weeks. Boston, where the subscription was filled in July, launched *Boston* in ten months. Philadelphia, which raised $100,000 in June, launched *Philadelphia* only twenty-two months later. Although generalizations are problematic when only five frigates are involved, it seems that it was not how long it took to raise money, but rather the size of the ship and the local labor situation that determined how long it would take to build a ship. *Philadelphia,* at 1,240 tons, and *New York,* at 1,130 tons, took much more time than the 700-ton *Boston,* the 850-ton *Essex,* or the 550-ton *John Adams.*[136] Furthermore, in New York, within days of laying down the keel of the subscription frigate *New York,* the keel of the forty-four-gun frigate *President* was laid down; the two keel layings were announced the same day, and another frigate was ordered later.[137] It is not surprising then that with a 600-ton merchant vessel also under construction, New York was said to have been drained of its ship carpenters.[138]

Cost and speed of construction can only be measured comparatively, yet it is impossible to compare without a basis. The frigates of 1794 took years to complete and ran over cost because of political backing-and-filling and supply problems.[139] Government-built frigates in the wartime conditions of 1798-1799 competed with subscription frigates for workmen and materials and cannot be isolated from them for comparison. No other American frigates were built until the United States had entered the War of 1812. To compare the speed and cost of construction of the subscription sloops with government-built ships is similarly difficult, since each vessel was built in different cities under different conditions to different designs.[140]

V. The Subscribers

Merchants clearly dominated the subscription ship committees in each town.[141] What is less clear is the extent to which merchants put up the money. Of nine subscription warships, only the list to the *Essex* has been published.[142] A rough count is that ninety-nine men contributed funds. Of these, thirty-three were merchants. Collectively, they contributed $54,550, or 73 percent of the $74,700 raised.[143]

There is no reason to believe the Salem list 'typical.' Unfortunately, the only other complete list known is

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132. *Naval Documents,* 4:393, Secretary of the Navy to Yellott, 14 November 1799.

133. Noble E. Cunningham, ed., *Circular Letters of Congressmen to Their Constituents 1789-1829,* 3 vols. (Chapel Hill: University of North Carolina Press, 1978) 1:284, reprinting letter of John Stratton to constituents, 22 April 1802 and Davis Rich Dewey, *Financial History of the United States* (New York: Longmans, Green and Co., 1903), p. 112.

134. Dewey, *Financial History,* p. 111, the expenditures for 1798.

135. Chapelle, *Sailing Navy,* p. 154.

136. Chapelle, *Sailing Navy,* pp. 549, 547, 533, 539, 544.

137. *The Spectator,* 11 August 1798, 3:1 and 2:1. The frigate *Adams* (not to be confused with *John Adams*) was also built in New York in 1799. Chapelle, *Sailing Navy,* pp. 144-45.

138. Hutchins, *Maritime Industries,* p. 181.

139. Maury Baker, 'Cost Overrun, An Early Naval Precedent: Building the First U.S. Warships, 1794-98,' *Maryland Historical Magazine,* no. 3, 72 (Fall 1977): 361-72.

140. Maclay, *Moses Brown,* p. 136, tries to prove that *Merrimack* was the cheapest sloop built of the 1798 ships. While the conclusion may be true, Maclay compares *Merrimack* to sloops *bought* by the navy from the merchant marine, not ships built as warships.

141. For example, in Newburyport, all nine on the committee were merchants or closely tied to maritime activities, as were all five on the Salem committee. Of New York's five-man committee and of Baltimore's nine-man committee, I have been able to identify the occupations of four in New York and eight in Baltimore: all were merchants. It is possible that the mercantile dominance broke down in the Southern towns, especially inland, but the occupations of the men who made up the Richmond and Petersburg committees are not clear.

142. P. C. F. Smith, *Frigate Essex Papers,* pp. 32-35 and Bassett, 'Career of Essex,' pp. 13-14.

143. In addition, P. C. F. Smith lists twenty-one men as 'shipmaster.' Collectively, they gave $8,965 or 12 percent of the total.

'Building the *Philadelphia* Frigate.' Engraving by Wm. Birch. (Courtesy of National Archives, Washington, D.C.)

from Richmond/Petersburg/Norfolk,[144] although there is a partial list from Boston.[145] For the Virginia towns' ship, $38,100 shares of Navy Stock were purchased by 164 subscribers,[146] including two female subscribers.[147]

144. The complete Virginia subscription list is in the National Archives, Records of the Bureau of Public Debt, Record Group 53, Entry 308. Unfortunately, the ledgers available for the other states in Record Group 53 (Rhode Island, entry 162; New York, entry 191; Pennsylvania, entry 231; and Maryland, entry 263) are confusing and fragmentary.

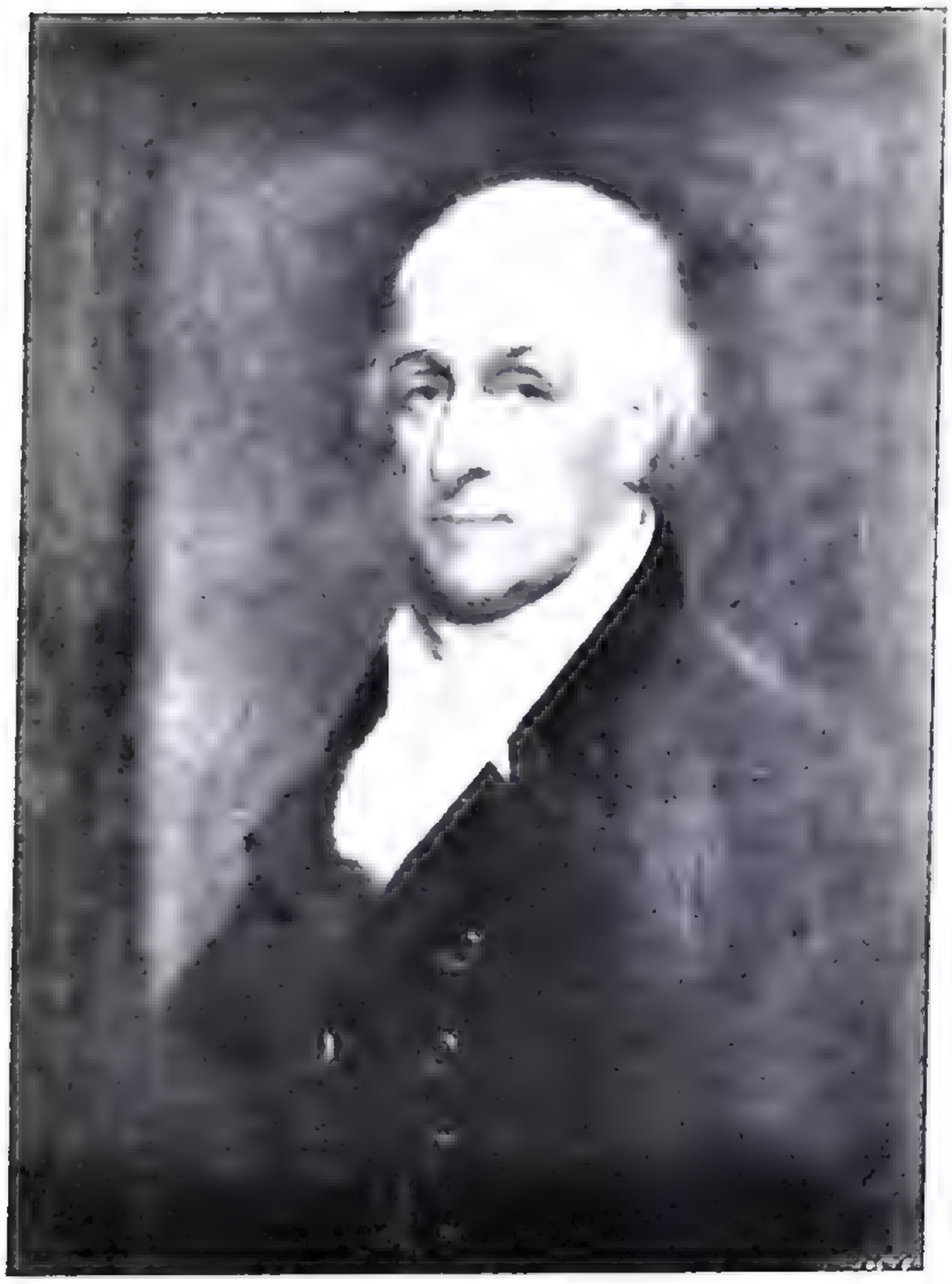
145. Parts of the Boston list are printed in *Porcupine's Gazette*, 5 July 1798, at 3:1 and 18 July 1798, 2:3.

146. The whole was purchased by John Granbery, the navy agent at Norfolk, on 11 September 1799, and transferred in October, November, and December to the subscribers.

147. Edmonia Randolph and Lucy Randolph each purchased $100 of stock.

Therefore, the average contribution was $232; the two largest subscribers bought $1,000 each. This was a far cry from Salem's list where the average contribution was $754, and twenty-three subscribers gave at least $1,000, including two at $10,000. Unfortunately, the occupations of most of the Virginia subscribers cannot be ascertained, although twenty-two partnerships, some of them presumably mercantile, contributed. The list does contain a sprinkling of Randolphs and Carters and Byrds; and John Marshall, who had just returned from Paris and Messrs. X, Y, and Z, headed the list with a $500 purchase.[148]

148. Five names below Marshall's is that of Bushrod Washington,



Portrait of William Bayard, 2nd, New York merchant involved in building New York's frigate, by Ezra Ames. (Courtesy of the Frick Art Reference Library.)

The Boston list that exists contains forty-two men, *none* of whom bought less than $1,000 of Navy Stock. Collectively, the forty-two gave $85,000 of the $136,500 raised in Boston.[149] Many of Boston's oldest families are on the list, including Eliot, Coolidge, Higginson, and Warren.

Given such incomplete information (the above lists identify about two-sevenths of the $711,700 of Navy Stock), little can be asserted. It would seem, however, if any projection can be made from 305 identified subscribers, that there were more than a thousand subscribers overall.

Why the merchants of the various cities acted so vigorously to promote and subscribe to subscription ships is not readily apparent. Howard Chapelle believes that the merchants subscribed *qua* merchants, since as 'the merchants who owned the ships were the chief sufferers from the seizures, . . . it seemed reasonable to Congress that they should make a special contribution.'[150]

It is hard to credit Chapelle's statement. Merchants were certainly the *immediate* sufferers from seizures, but since merchants were insured, as contemporaries realized, the costs were passed along to consumers in the form of higher prices.[151] Also, with a 6 percent return, it is not obvious that the merchant subscribers were making a 'special contribution.' Indeed, P. C. F. Smith has written that the subscribers *expected* to make a profit, that the subscriber 'neither was nor was expected to be philanthropic.'[152]

Yet the profit motive cannot be the real explanation. Gallatin, a great opponent of military profiteering, commented that the 6 percent certificates 'would not sell for 20s. in the pound' but the loss would be a 'sacrifice to the public.'[153] Navy Secretary Stoddert thought the subscribers faced 'a certain loss' of 15 to 20 percent of the money advanced.[154] While it is difficult to piece together to what extent subscribers of 6 percent stock were in fact investing at a loss,[155] since government bonds normally returned 8 percent, subscribers probably lost a few cents for every dollar of stock.[156]

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who would serve with Marshall on the Supreme Court for almost thirty years.

149. The $136,500 figure is given in Morison, *Maritime History of Massachusetts*, p. 175.

150. Chapelle, *Sailing Navy*, p. 153.

151. Cunningham, *Circular Letters*, pp. 163-64, reprinting letter of Robert G. Harper to constituents, 20 March 1799. Harper wrote, 'It has been said that . . . the saving in insurance, and captures, is a saving to the merchants alone; whereas the expence of a fleet is to be borne by the nation at large. But it is not true that the savings is to the merchants alone. To say it is to the consumers alone, would be much nearer the truth. The merchant will have his profits on his goods, whether they come high or low to him; and this profit, together with the original price, the consumer must pay. If insurance rise[s] from seven per cent to fifteen per cent. the additional eight per cent. is laid on the price of the goods, and they come eight per cent higher to the consumer.'

152. P. C. F. Smith, *Frigate Essex Papers*, p. 22.

153. *Annals*, 7:2034, speech 23 June 1798.

154. *Naval Documents*, 4:32-33, Secretary of the Navy to Murray et al., 5 August 1799. The single contemporary dissenting view was that of the Philadelphia *Aurora*, which querulously observed, 'The Massachusetts Mercury has taken with the usual effect a great deal of the *up-hill pains* to prove that—a *loan* at interest of *six per cent* is a *gift*, how are we loggerheads gifted.' *Aurora & General Advertiser*, 18 July 1798, at 3:3. Other newspapers waxed lyrical on 'this display of liberality and firmness.' *The Spectator*, 16 June 1798, 2:3.

155. The profitable rate of return varied depending on the investment options available in June and July 1798 compared to the inflation rate; the riskiness of other investments against United States stock guaranteed by the Fifth Amendment; and other items in the merchant's investment portfolio.

156. Bassett, 'Career of Essex,' pp. 12-13.

On the other hand, the merchants had great incentive to see that warships were built. Even with insurance, captures were so commonplace and the cost of insurance so high[157] that some vessels were just left in port. Thus, much of the merchants' capital was employed at no return, dismasted in a dozen harbors along the Atlantic coast. While merchants thus may have had little pecuniary interest in Navy Stock *per se,* their entire livelihood was dependent on the revival of trade. What they saw as the national interest—the creation of a navy—neatly coincided with their own.

If merchants as a class might have economic and patriotic motivations, certain individual merchants might try to 'lie low,' avoiding subscribing, realizing that other merchants would bear the loss from stock ownership while they all gained from a navy. What would now be called the 'freerider' problem was of great concern to subscription warship advocates. William Cobbett worried that the Philadelphia ship would be ascribed to merchants 'in the lump, while, probably, very many of them will not subscribe a single sliver [*sic*]. It is not just that misers, drones, and democrats, should share in that praise.'[158] In Charleston, 'A CITIZEN' wrote the *City Gazette,* warning that with the money needed, 'there will be found citizens, who under various pretexts shrink from the service, and in order, as they think, effectually to screen themselves from reproach, will even go so far as to oppose such measures with ingenuous argument.'[159]

Undoubtedly there were merchants who did not subscribe, but there were social mechanisms which encouraged merchants to be stout patriots. For one thing, most merchants were Federalists. Secretary Stoddert recognized this and appealed to the politics of the merchants to fill out the authorization.[160]

Moreover, merchants belonged to an intimate and close society. They belonged to business organizations like the New York or Philadelphia Chambers of Commerce, whose presidents, John Murray and Thomas Fitzsimmons, served on the subscription committees of their respective cities. They were linked to philanthropic and mutual insurance organizations like the Newburyport Marine Society, whose fifteen-year-president, William Coombs, also sat on that city's subscription committee. In Baltimore, there may have been shared ties among subscribers as militia commanders and members of the Society of Cincinnati.[161] Such an intricate web of social and civic ties must have made freeriders uncomfortably conspicuous.[162]

While the intra-city freerider problem may have been limited by social ties, it is not clear how the inter-city 'public goods' problem was overcome. Yet overcome it was: nine warships were subscribed to and built by eleven towns, although in theory each town had increasingly greater incentives to let the others or the Federal Government take care of the problem of naval protection. Of course, it may be true that *other* towns did not undertake a subscription ship because of the public goods problem. Perhaps Portsmouth or Providence, New Haven or New London, Newport or Savannah, were so disinclined. Yet the greater fact is that Newburyport, leading off the movement, was not so affected, nor were towns like Charleston, which acted months later, after other towns and the United States itself had begun more warships.

Perhaps part of the answer to the public goods prob-

157. In May 1798, Stephen Girard's vessels sailing from Philadelphia to Havana were insured at 15 percent, although 5 percent would be refunded if there was no loss and if the vessel sailed with naval escort. Harold E. Gillingham, *Marine Insurance in Philadelphia 1721-1800,* Philadelphia: privately printed, 1933, p. 101. New England shipping to the West Indies was reportedly charged 30 percent for insurance. Albion, *New England and the Sea,* p. 73.

158. *Porcupine's Gazette,* 12 June 1798, 3:2.

159. *The City Gazette and Daily Advertising,* 2 August 1798, 2:4. These comments lend support to the argument that subscribers were losing money—were they profiting, obviously no one would 'shrink from the service.'

160. In encouraging Providence to give a ship, Stoddert wrote, 'most of the Towns distinguished for Federalism, and public Spirit, are making efforts to furnish the vessels still wanted.' *Naval Documents,* 1:277-78, Secretary of the Navy to Brown, 7 August 1798.

161. National Archives Record Group 53, entry 263, 948: 100. John Eager Howard, Federalist Senator from Maryland, together with John Swan, contributed $4,700. Swan was the brigadier general in charge of the Baltimore militia. Their contribution is noted 'Society of Cincinatti.' John O'Donnell, who purchased $4,000 of stock, was lieutenant colonel of the 6th Regiment of Militia in 1798. *Federal Gazette & Baltimore Daily Advertiser,* 20 June 1798, 3:4. In this context, it may be significant that an original member of the Baltimore committee, John Stricker, was another militia commander (later a general in defense of Baltimore in 1814). On the other hand, the original list of the Society of Cincinatti does not seem to be coincident with the Baltimore committee. John D. Kilbourne, 'The Society of Cincinatti in Maryland: Its First One Hundred Years, 1783-1883,' *Maryland Historical Magazine,* no. 3, 78 (Fall 1983): 169-85.

162. For instance, the Crowninshield family in Salem, as the only leading merchant family not to give, has received the attention of nearly every historian of the *Essex.* For example, James Duncan Phillips, 'Salem's Part in the Naval War with France,' *The New England Quarterly,* no. 4 (December 1943), 553-54; William T. Whitney, 'The Crowninshields of Salem, 1800-1808,' *Essex Institute Historical Collections,* 94 (January 1958): 6-7; and P. C. F. Smith, *Frigate Essex Papers,* pp. 19-27.

lem is parochialism: that each subscribing city believed its ship would guard its own harbor. It is true that New York merchants thought *New York* 'may guard our port from insult or danger, and occasionally brush away from our coasts those numerous pirates that every where infest them'[163] and that Charleston subscribers were well aware of their exposed position.[164] In fact, even after the ships had been presented to the navy, the local promoters retained influence: the Boston merchants advised the captain of the *Boston* where to sail to intercept French privateers, a direction which the Secretary of the Navy supported.[165]

Yet such answers go only so far. When Noah Webster wrote that the subscription ships would be 'managed with the energy of hardy FREEMEN, who know the motives of their duty, and who possess a spirit unaccustomed to being cowed or conquered,'[166] he was not merely puffing patriotic. Instead, he was trying to strike a responsive chord with men who shared the rhetoric and memories of the Revolution. Many had fought in line regiments or in privateers and shared the prevailing mythos of the militia defending the hearth and homestead. The young men of 1776 and 1777 were, in 1798, the civic and mercantile leaders of the United States. In the Revolution, they came to their country's defense with their local officers, without an executive which could feed or support them. Twenty years later these men would not be slow to pledge their specie, even without central direction. They were not passive citizens in a large, established world power; they were active participants in a new, small republic that they had helped create. They thought that their formulative experience in war and at the creation of the Union gave them responsibility and standing to act for their republic. In such a spirit, Newburyport began its subscription for *Merrimack*. In effect, those merchants rang the tocsin for other cities in the same electric way that militia called out at Lexington and Concord in 1775 caused young men hundreds of miles away to assemble on village greens. In 1798, the merchants of Newburyport believed their example would be followed, that other cities would see a duty to respond to even distant threats, and that the actions of private citizens might be an important, even decisive, influence on American naval and foreign policy.

VI. The Conclusion

But almost all subscription warships passed into oblivion after 1798, although subscription ships made up a significant part of the American navy. The end of the naval war with France and the impending inauguration of Jefferson as President convinced the Federalists in Congress to preempt inevitable navy cuts by paring down the fleet to its best ships. The Naval Peace Establishment Act of 1801 retained thirteen frigates in the United States Navy, of which five—*Boston, Essex, John Adams, New York,* and *Philadelphia*—were built by subscription.[167]

But almost all the subscription frigates were squandered. *Philadelphia* ran aground in Tripoli harbor while chasing a Barbary corsair, and had to be burned, a daring exploit which made Stephen Decatur a hero.[168] *Boston* and *New York* were were soon laid up in ordinary at the Washington Navy Yard where an unconcerned administration allowed them to rot through. Both were burned by the British during the attack on Washington in 1814.[169] *John Adams* captured the twenty-gun Tripolitanian *Meshuda* in 1803,[170] but she too was laid up. Although repaired for service, she was blockaded during the War of 1812, and finally broken up in 1829.[171] Only *Essex* had a better fate. Under Captain David Porter in 1812, the frigate sailed into the Pacific where she took dozens of prizes and disrupted the British whaling trade. *Essex* cruised independently

163. *Federal Gazette & Baltimore Daily Advertiser,* 14 June 1798, 3:1.

164. *City Gazette and Daily Advertiser,* 2 August 1798, 2:4.

165. *Naval Documents,* 6:81, Higginson to Little, 25 June 1800 and 6:108-09, Secretary of the Navy to Higginson, 3 July 1800. The merchants were also given the power to appoint the ship's captain, officers, and warrant officers. Politicking occurred; George Cross of Charleston wrote William Jones of Philadelphia, asking Jones to intercede on Cross' behalf with Stoddert in order to secure for Cross the command of the *John Adams*. Correspondence File of the Jones & Clark Papers, Historical Society of Pennsylvania, letter of Cross to Jones, 23 August 1798. Perhaps surprisingly, many of the choices were excellent, including Edward Preble to command *Essex*, John Rodgers to command *Maryland,* and Samuel Barron to command *Richmond.*

166. *Commercial Advertiser,* 30 June 1798, 2:4.

167. Knox, *Personnel and Ships Data,* pp. 68-76 and Chapelle, *Sailing Navy,* p. 175.

168. Fowler, *Jack Tars,* pp. 94-101 and John H. Schroeder, 'Stephen Decatur: Heroic Ideal of the Young Navy,' in James C. Bradford, ed., *Command Under Sail: Makers of the American Naval Tradition 1775-1850* (Annapolis: Naval Institute Press, 1985), pp. 203-5.

169. Chapelle, *Sailing Navy,* pp. 244, 280.

170. Fowler, *Jack Tars,* pp. 188-201 and Pratt, *The Navy,* p. 119.

171. Chapelle, *Sailing Navy,* pp. 359-60.

The Subscription Warship Program

City	*Ship Name*	*Rated*[5]	*Merchant In Charge*[4]	*Builder*	*Amount Subscribed*	*Keel Laid*	*Launched*	*At Sea*
Newburyport	*Merrimack*	24	William Bartlet	Hackett	$ 41,100	July 1798	Oct. 1798	Dec. 1798
Philadelphia[1]	*Philadelphia*	38	Thos. Fitzsimmons	S. Humphreys, Hutton & Delavue[5]	106,000+[9]	Dec. 1798	Dec. 1799	April 1800
Baltimore	*Maryland*	18	David Stewart Robert Oliver	Price	92,000+[9]	?	June 1799	Nov. 1799
	Patapsco		Robert Gilmor	De Rochbrune		?	June 1799	Nov. 1799
New York	*New York*	36	John Murray George Barnewall William Bayard John P. Mumford	Peck & Carpenter[6]	66,000+[9]	Aug. 1798	April 1800	Oct. 1800
Richmond Petersburg Norfolk	*Richmond*	18	James Campbell	[purchased]	38,100	—	—	Dec. 1798
Boston	*Boston*	32	John Coffin Jones	Hart[7]	136,500	Aug. 1798	May 1799	July 1799
Charleston[2]	*John Adams*	24	William Crafts Thos. Morris Henry Laurens Adam Tunno	Pritchard[3]	100,000+[9]	Aug. 1798	June 1799	Dec. 1799
Salem	*Essex*	32	Wm. Gary Joseph Waters	Briggs[8]	74,700	April 1799	Sep. 1799	Dec. 1799

1. And southern New Jersey.
2. And Beaufort, S.C.
3. As completed.
4. To whom the Secretary of the Navy wrote.
5. Designed by Josiah Fox.
6. Designed by Samuel Humphreys.
7. Designed by Edmund Hartt.
8. Designed by William Hackett.
9. Last published figure.

for a year-and-a-half until she was finally trapped, engaged, and captured.[172]

The idea of privately-subscribed warships fell between a government which did not want a navy and a merchant class which did not want war. Jefferson initiated a gunboat navy, which cost less to maintain than the frigates, and which might protect American ports, but not merchant shipping.[173] Gallatin, then Secretary of the Treasury, might have pushed for private subscriptions to help maintain the frigates. Such a scheme would have internalized the costs of protection on the merchants, who, in Republican eyes, solely benefitted from a high-seas navy. But no such idea was ever broached. Given the sale of the subscription sloops and

172. Fowler, *Jack Tars*, pp. 188-201 and David F. Long, 'David Porter: A Pacific Ocean Gadfly,' in Bradford, *Command Under Sail*, pp. 177-85.

173. Frederick C. Leiner, 'The "Whimsical Phylosophic President" and His Gunboats,' *American Neptune*, no. 4, 43 (October 1983): 245-66.

the patent wasting of the subscription frigates, it would have been difficult for later presidents to turn to subscribers for warships. Nor did the wartime building program of 1813 attempt to utilize the subscription method, even though William Jones of Philadelphia, who had served on that city's committee, was then Secretary of the Navy.

Nevertheless, subscription financing had provided nine warships to a new navy. The way activist, public-spirited citizens forced national policy by their own initiative is revealing of an earlier America, and conversely shows the changing functions and expectations of government. The subscription warships have disappeared, and the merchants who built them are now forgotten. But when millions for defense were needed, those Americans were not found lacking.

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Underway Replenishment, 1799-1800

Tyrone G. Martin, CDR USN (Ret.)

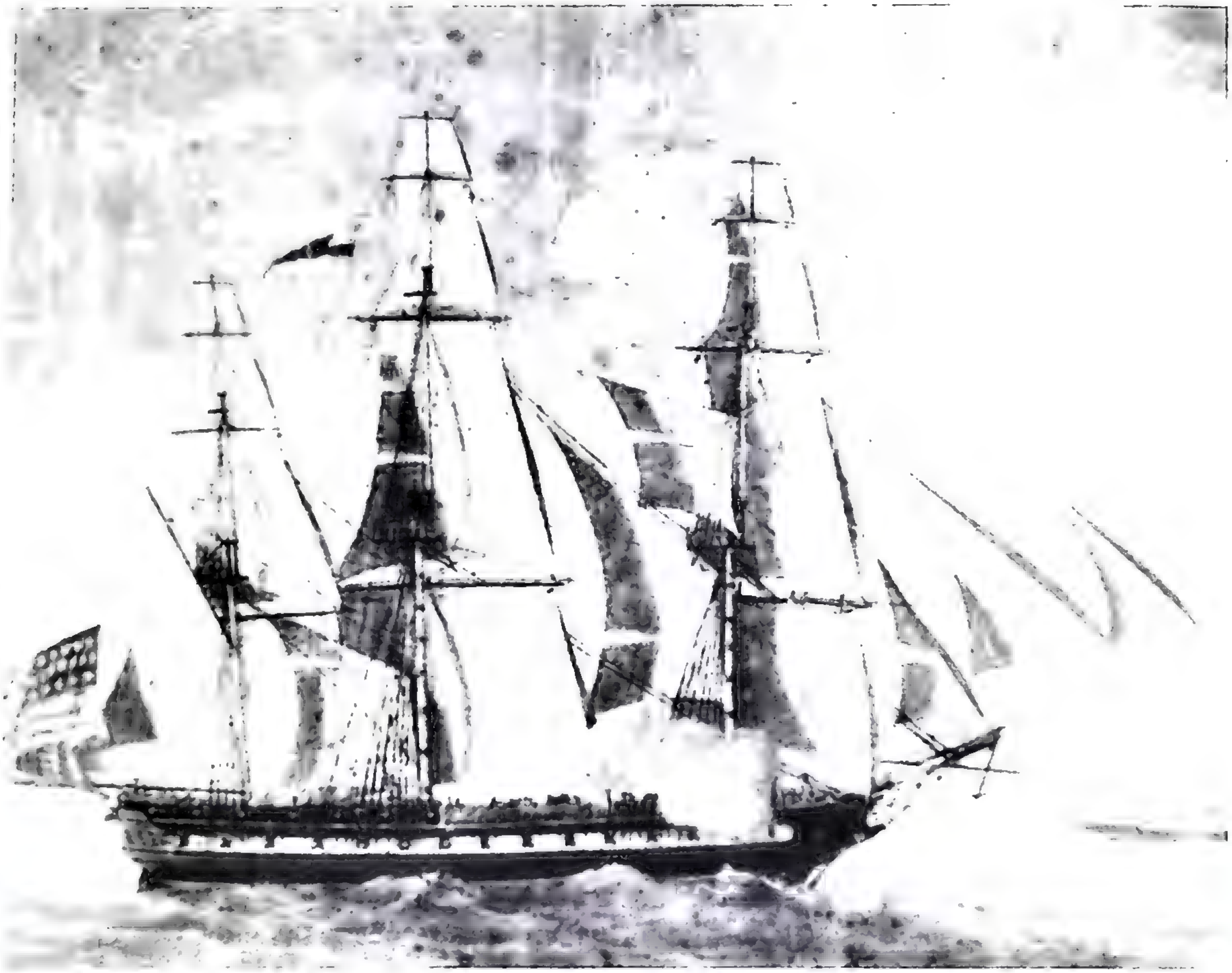
It is a popular view that the technique of underway replenishment—the mobile logistic support of naval forces at sea—was developed and brought to a high level of efficiency by the United States Navy in the course of World War II. Samuel Eliot Morison, in his voluminous history of that era, took a somewhat longer view and traced the origins of the procedure to the world cruise of Teddy Roosevelt's Great White Fleet. A still longer view has uncovered evidence that the United States Navy first intentionally practiced underway replenishment during the Quasi-War with France.

The Quasi-War may be said to have begun with President John Adams' signing of the act authorizing maritime defense measures against French transgressors on 28 May 1798, four weeks after the creation of the Navy Department and three before the first Navy Secretary, Benjamin Stoddert, took office. The conflict with France basically was caused by the infringement on neutral American commerce and ports by a France embroiled in a war with England. The act signed by President Adams provided for the defense of that commerce, nothing more.

During the summer of 1798, the new United States Navy was created from vessels purchased for the purpose, and a pitiful few built for it. As the number of units increased and stronger measures were authorized, the defensive operations shifted outward from sparse patrols along our coast to the stationing of units in the West Indies, which then was the scene of the bulk of American trade. The first squadron ordered in December 1798 was under Commodore John Barry, senior officer of the young Navy, in *United States* (44), to be based on Prince Rupert's Bay, Dominica. From this friendly anchorage, protective patrols were sent out to cover American shipping and suppress French naval and privateering activity coming principally from nearby Guadeloupe. Barry's theater of operations encompassed the area from St. Kitts southward through the Windward Islands to the continent and westward to include Curaçao. A second squadron was established under Commodore Thomas Truxtun in *Constellation* (38) to patrol between St. Kitts and Puerto Rico, the former being his rendezvous. Two smaller squadrons (generally two to three ships) were organized to protect our shipping in the Windward Passage and the waters north of Cuba. All of these squadrons were sustained with supplies delivered to, or purchases made in, their places of rendezvous.

To regress for a moment: In August 1791, Saint Domingue, the French western end of Hispaniola Island, erupted in revolution, black slaves against white masters. In the intervening years, General Pierre Francois Domingue Toussaint L'Ouverture, a former slave, had emerged as the strongest and most responsible among the rebels vying for power. As a part of the action taken by Congress and the President during May-July 1798 to protect American shipping, an embargo was placed on all trade with the French colony which, until then, had derived the bulk of its needed supplies from us. Driven by the increasing plight of his people, in November of that year L'Ouverture wrote to Adams urgently requesting resumption of trade. In March 1799, the President responded that all privateering originating in Haiti would have to be suppressed as a prerequisite condition. The island leader initiated the action in April, and Adams issued a decree late in June which would lift the trade embargo with Haiti effective 1 August. On 27 July, Secretary Stoddert issued orders to Captain Silas Talbot of *Constitution* (44), then in Boston, to proceed to Santo Domingo by a circuitous route and once there 'assume command of all American Vessels on that station . . .' sent to ensure the safety of Yankee merchant shipping.

Talbot sailed to Norfolk, Virginia, for supplies and



'Old Ironsides'—USS *Constitution* as she appeared in 1799-1800. Painting attributed to Michel Felice Corné with contemporary documentation ca. summer 1803. (Courtesy of U.S. Navy and USS Constitution Museum in Boston.)

left there on 25 August. After passing east and southward of the Windward Islands and reconnoitering the South American coast from Cayenne to Surinam, he turned northward along the islands, looked in at Basseterre Roads, Guadeloupe, and arrived off Monte Cristi, Hispaniola, on 15 October. There, he rendezvoused with frigate *Boston* (28). In the offing were frigate *General Greene* (28) and brig *Norfolk* (18). The three subordinate Captains soon were on board the flagship, briefing Talbot on the situation as they had found it. None had been in the area very long. One thing they certainly apprised Talbot of was the concern of Consul Edward Stevens about having American units appear in Haitian ports, particularly once their protective activities began to have an effect on local 'enterprise.' So volatile were conditions ashore that it was impossible to predict what might result if, say, *Constitution* came in for some time in order to make routine repairs. And so strong were Doctor Stevens' concerns in this regard that he already had written to Benjamin Stoddert requesting the Secretary make every effort to sustain the squadron with minimum use of those ports. The matter was not of immediate import, however, as all units were recently from home or friendly ports. Following dinner and receipt of the Commodore's orders, the Captains returned to their ship and made for their several sta-

tions. Until the squadron was increased in size, little more could be done than patrol the likeliest areas of danger and hope for the best. *Constitution*'s area kept her generally within thirty miles of Cap Francois (Cap Haitien today). Ship *Herald* (20) joined the squadron on 16 November. She first was assigned a patrol area closer inshore of *Constitution*.

As the days passed, and his correspondence with Doctor Stevens flourished (via ship's boat or itinerant trader), the Commodore gained a deeper understanding of conditions in the strife-torn land. In line with the Consul's wishes, Talbot wrote to Naval Agent Nathan Levy at the Cap on 24 November requesting that he seek to charter a 'watering vessel' with which to supply his units that most necessary commodity on-station. He also ordered quantities of limes, oranges, onions, yams, plantains, beeves, goats, sheep, and Indian meal or oat meal. Clearly, the intent was to keep all American warships clear of the local citizenry. Unfortunately, Levy reported three days later that no ship was available. In consequence, Talbot evolved, in the weeks which followed, a practice of using the smaller units of the squadron, as well as amenable passing merchantmen calling at Cap Francois, to bring out supplies to the others, and especially to his immediate command, *Constitution*.

By this time, *Constitution* had been literally scraping the bottom of the barrel, so long had she been underway. Twice in recent days she had received small amounts from *General Greene,* but not enough to sustain so large a crew (about 400). Talbot thus was forced to leave his station and proceed westward to Mole St. Nicholas, a port removed from the Americans' principal scene of action, where water could be had and the presence of another Naval Agent offered the prospect of additional logistic support. The big frigate arrived on 2 December, coming to anchor in twenty-four fathoms just as eight bells struck in the dog watches. Noted the log: 'From our last anchorage to this is one hundred days which time we have been at Sea three men we lost overboard and 6 died, Sent a Commissioned officer and three midshipmen on watering service. . . .'

Watering the ship and overhauling her rigging proceeded smoothly. The ground tier of ninety leaguers, forty-six butts, and thirty gang casks was filled before noon on the 5th. The whole watering operation ended on the afternoon of the 6th, with 191 tons of water stowed below. She was on her way back to patrol station 6 A.M. on Sunday, the 8th.

The routine known in October and November 1799 was reestablished with one change: fresh water was strictly controlled. Schooner *Experiment* (12) and brig *Augusta* (14) joined the squadron, and *General Greene* was permitted to enter port for a badly needed overhaul. On 14 December, Talbot began experiencing some of the top hamper problems that had plagued the ship during her earlier operations with Commodore Barry's squadron while under the command of Captain Samuel Nicholson. The foremast tressletrees were found to be sprung and had to be replaced, and it was necessary to redo the gammoning on the bowsprit, which had somehow loosened. On the 17th, a more serious problem became apparent: 'Observed the Mainmast to labour very much about 10 or 12 feet below the Treeltrees [*sic*].' Further observation revealed severe checking in the mast. For the next month, the carpenter strove to insure that the mast would not be lost completely, ultimately fitting it with two thirty-two-feet-long oaken fishes woolded in place with 120 fathoms of six-inch hawser. In this case, the range of talent and extent of supplies inherent in the big frigate made it possible to effect these repairs within her own resources while at sea. The smaller ships were much less capable.

The Navy Department-chartered schooner *Elizabeth,* twenty-six days from Philadelphia, rendezvoused with *Constitution* at 10 A.M. on 30 December, laden with stores for the Santo Domingo Squadron. She was the first in a series arranged for by Benjamin Stoddert in response to Consul Stevens' urgings. In the first underway replenishment in the United States Navy, Commodore Talbot took the merchantman in tow and commenced the transfer of stores by ships' boats. In twelve hours, the frigate took aboard 260 barrels of bread, 75 each of beef and pork, 15 of Indian meal, 10 of flour, 30 of potatoes, and 8 of cheese, as well as 4 tierces of rice and 1 of pease, another 'small cask' of pease, and 6 kegs of butter. A heavy swell from the northward brought a halt to the operation until daylight. Another ten hours of heavy labor completed the task, and at eight bells of the afternoon watch *Elizabeth* was ordered to proceed and replenish *Boston*.

There exists a tale about *Constitution* wherein she conducts a highly successful six-month cruise, regularly capturing enemy ships and just as regularly divesting them of their stocks of spiritous liquors. The story concludes with the frigate returning to Boston with the same thousands of gallons of water with which she

sailed, but totally bereft of the strong stuff. There is the smallest grain of truth in the story, witness this log entry for the afternoon watch on 8 January 1800: 'Served half allowance of Spirits to Ships company the Rum being Totally expended.' Fortunately for all hands, *Boston* soon rendezvoused with the flagship and early the next afternoon transferred 'thirty gallons of rum for ships use, served out full allowance of Spirits to ships company.' On the 13th, *General Greene*, newly out from Cap Francois following overhaul, improved the situation markedly by delivering sixteen kegs and four pipes of brandy, two puncheons of rum, and fifteen small kegs of gin to *Constitution*, together with at least nine hogsheads of molasses, four casks of vinegar, one of oil, two casks of stonelime, one cask of fruit lime, and a box of candles.

Late in January, Talbot chased and brought to an American 'polacky' ('polacre'—a three-masted vessel with lateen rig). He received 120 gallons of rum from it to insure against running dry again. *Constitution*'s log for this period bears witness to the continuing good health and generally high morale of her crew. Punishment was awarded for only the second time in the new year on 10 February.

On the afternoon of 20 February, a chartered supply sloop out of New York appeared. She was taken in tow for two days as, through intermittent heavy weather, another big load of stores was transferred. As the operation was concluding, Talbot discovered to his dismay that the heel of the foretopmast had sprung: another woolding job for the carpenters. The commodore must have been most thankful that the hurricane season was not yet upon him, with two injured masts.

Experiment appeared on the morning of the 27th, escorting two prize schooners laden with stores for the flagship. Through the day, the boats plied back and forth, restocking the frigate's hold and storerooms with many of the things required for a large crew: 110 barrels of bread, 28 bags and 2 barrels of potatoes, 17 of beans, 26 casks of brandy, 42 firkins of butter, 58 boxes of candles, and 20 dozen shirts. Prize *Amphitheatre*, subsequent to her unloading, was armed and outfitted for inshore patrol duty under young Lieutenant David Porter.

On 13 March, Talbot once again was faced with the imminent end of his water supply and put in at Mole St. Nicholas at noon the next day. *Constitution* had been at sea for 195 of the previous 201 days, no mean record for any ship. Watering was completed in rapid order; the frigate was underway for her post at 9 A.M. on the 17th. A welcome last-minute acquisition undoubtedly looked upon with delight by the crew was a precious supply of coffee and sugar.

For more than three weeks, the humdrum patrolling went on. *Constitution* received stores from *Enterprise* on 6 April and from a chartered stores ship on the 13th (both Sundays—how familiar in today's Navy), from *Amphitheatre* on the 14th ('6 cords of wood'), and *Herald* on the 28th. During this same period, the Commodore sent sixteen invalided seamen and Marines from his ship's company to the homeward-bound *General Greene* in exchange for twenty-five seamen—another form of replenishment.

Operationally, May was the busiest month of Talbot's tour as commodore. On the 8th, *Constitution* and *Amphitheatre* captured the French privateer *Esther* (3) and retook her prize, the American brig *Nymph*. On the 9th, one of the frigate's boats managed to cut out the American trafficker sloop *Sally* from the tiny port of St. Iago. Talbot, a day later, used *Sally* as a 'Trojan horse' in which an assault party entered the port of Puerto Plata and captured the privateer schooner *Sandwich*. The brilliant action was led by Lieutenant Isaac Hull, later *Constitution*'s Captain in her victory over HMS *Guerriere* in 1812.

Buoyed by the success and activity of these events, Talbot next took his ship and *Amphitheatre* on a sweep to the eastern tip of Hispaniola, seeking other opportunities to cut out and cut up privateering efforts on the coast and in adjacent waters. The earlier successes were not repeated. Faced once more with a shortage of water, he returned westward, arriving at Mole St. Nicholas on the afternoon of 11 June.

Watering was completed at 3 A.M. on Saturday, the 14th, and after again taking on a supply of coffee and sugar, *Constitution* headed to sea at 6 A.M. Patrolling once more off Cap Francois, it soon was apparent that ship and crew alike were coming to the end of their endurance. Since the preceding August, they had been in port just twelve days—and those all too brief periods had been given over to the back-breaking labor of watering and supplying the ship. The log for 16 June noted thirty sick with fever, and scurvy was becoming a problem despite Talbot's best efforts to afford his men antiscorbutics. Many a man's term of enlistment was about done.

The crew resumed measuring their patrol time in weeks. Heavy squalls on the 29th must have reminded the Commodore that this was the start of the hurricane season in these waters—another worry for a commander with a tired ship and a weary crew. Two days later, a log entry read:

> Our principle [*sic*] sails except a foresail has [*sic*] from actual service become worn out so much as to be totally unserviceable, on a lee shore, or pursuing an enemy under a press of sail. We have repeatedly split the fore and main topsails when every effort would have been useless to bend others. Notwithstanding, forty bolts of canvas has [*sic*] been [illegible] on them.

Talbot did his duty relentlessly. *Constitution* held her station although others came and went. *Augusta* was ordered into Cap Francois on 5 July for overhaul. Chaplain William Austin took advantage of the Commodore's stoppage of a homeward-bound American sloop to end his term of service on board on the 6th. Ironically, it was a Sunday. *Augusta* came back out a week later and supplied the frigate with thirty barrels of beef, two tierces of rice, and five pipes of brandy (one of which was sixty gallons short when it arrived on board).

Real trouble came for the Commodore on the afternoon of the 13th:

> . . . at 5 Observed the Main Mast to incline forward Although various ways has [*sic*] been used in order to Regain its Perpendicular which is not Obtain'd the sprung part of the Mast which I have Mentioned near the Cat Harpin legs [*sic*] Increases and runs downwards and runs In a winding Direction nearly four feet on first Observing a small curve in the Main Mast was the 17th December 1799—After Chasing to windward under a press of sail . . . the bolts which rivet through and secure the cheeks of the mast is [*sic*] of little use as they bent and became loose.

A port call was mandatory. They arrived safely in Cap Francois on the morning of the 15th. Repairs began immediately; by midafternoon, both main and maintopsail yards had been sent down. A stores party brought aboard thirty barrels of pork and five of flour. (An armed French ship was in the port, but was not inclined to start anything, even with *Constitution* at sixes and sevens.) The maintopmast was gotten down the following morning, double runners were rigged fore and aft of the injured mast, and 'by Degrees' it was hove straight once more. While the carpenters began fitting fishes to the mast, others took advantage of the opportunity to overhaul the rigging that had been taken down. There were no liberty parties. In three days, '. . . we compleated the Mainmast by Carrying a fish of 51 feet from the Heel of the Topmast down the main Mast—Which was made from a Sprung Topmast Leaving the full round on the fore part for a Wolding [*sic*] surface . . .' By midnight of the 21st, the upper masts had been swayed up once more, the rigging rerigged, and the sails bent on. Talbot put to sea the next morning.

Commodore Alexander Murray in *Constellation* arrived just as Talbot was clearing the channel out of port, and succeeded Talbot as squadron commander on the afternoon of the 24th. Talbot sailed north a few hours later, escorting a dozen merchantmen away from those dangerous waters. The group arrived off the Virginia Capes on 13 August, where the merchants went their separate ways and Talbot thankfully bent on additional sail to get his exhausted command home to Boston. It could be none too soon: '. . . our State of Provisions being as follows Viz. Beef none Pork 14 barrels Rum 60 gallons put the Ships Company on half Allowance of Spirits—'

At long last, Boston Light was raised on the 24th. *Constitution* anchored in President Roads at 2 P.M. It had been an epic voyage that had demanded the utmost of the leadership talents of Silas Talbot. Using a crude, somewhat haphazard form of underway replenishment, he had maintained his command active on her assigned mission for 347 of the preceding 366 days—a record few ships could claim, even in World War II.

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Tyrone G. Martin was fifty-eighth commander of USS Constitution, *overseeing the frigate's latest restoration and leading her through the events of our Bicentennial. He formulated the policy which continues to guide her historical restoration and was a major contributor to the artisans' manual which guides day-to-day maintenance. His award-winning* A Most Fortunate Ship *is considered by many to be the definitive work on 'Old Ironsides.'*

The Navy's Campaign against the Licensed Trade in the War of 1812

MICHAEL J. CRAWFORD

ON 15 May 1813, in the midst of the North Atlantic, a frigate chased, brought to, and boarded a merchant ship. Although the frigate's officers spoke not a word of her national identity and her crew observed strict silence, the merchant seamen thought they recognized some of the warship's men as belonging to the United States frigate *Congress*. Master Kirby Drake produced his ship's papers, which showed her to be *John & Adam*, of Richmond, Virginia, on a return voyage from Cadiz, Spain; but, his suspicions aroused, he held back his license, a promise of safe passage issued by the British government. Allowed to continue their voyage, *John & Adam*'s men never learned they had actually been examined by officers of the United States frigate *President*. Two weeks later, as she approached the coast of the United States, *John & Adam* came to under the guns of His Majesty's frigate *Tenedos*. Drake now brought forth his British license and told of his encounter with the mysterious warship. Grateful for the intelligence, Captain Hyde Parker supplied his American 'enemy' with some beef and biscuit and sent them on their way.[1]

Scattered records of encounters such as those of *John & Adam* with *President* and *Tenedos* reveal the drama that occurred on the lonely seas when a merchant vessel met a ship of war during the War of 1812. For American merchantmen bearing protections, the usual pregnant tension arising from the threat of capture or violence was exacerbated by suspicion and fear of exposure that made their own men-of-war the enemy, and those of the British, friends.

Determined to suppress trade licensed by the enemy, officers of the United States Navy confronted legal and practical problems. The lawfulness of an American's possession and use of a British license protecting trade to neutral ports was a matter of some doubt, while discovering if American merchant vessels examined at sea carried licenses proved a practical dilemma. Solutions to the latter sometimes entangled officers in subsequent lawsuits. This essay examines the context in which officers of the United States Navy operated against the licensed trade, the practices employed by officers of one United States warship to stop it, and the legal implications of those practices.

For several years before 1812, the British government, needing American-grown foodstuffs for the empire and its army facing Napoleon's forces on the Iberian Peninsula, had allowed both British and American merchant vessels not to comply with certain parts of Great Britain's navigation laws. Upon outbreak of war with America, the British decided to issue special permits to Americans even though they were now enemies. Dependency on American food supplies, coupled with the hope of ending the war quickly by diplomatic rather than military means, induced the British government to issue licenses promising safe passage to unarmed American vessels transporting provisions to ports in Nova Scotia and New Brunswick, the West Indies, and Spain and Portugal.[2] The number of licenses

1. Historical Society of Pennsylvania, Philadelphia, Pa., William Begg, 'Journal of the Proceedings of His Majesty's Ship *Tenedos*, 8 April 1812-29 March 1815,' entry for 31 May 1813; N. Flayderman & Co., Inc., New Milford, Conn., Stephen Williams, 'Log of United States Frigate *President*, 8 April-6 October 1813,' entry for 15 May 1813.

2. W. F. Galpin, 'The American Grain Trade to the Spanish Peninsula, 1810-1814,' *American Historical Review* 28 (1922): 24-44; G. S. Graham, *Sea Power and British North America, 1783-1820: A Study in British Colonial Policy* (Cambridge, Mass., 1941; reprint ed., New York, 1968), pp. 195-215; R. Horsman, *The War of 1812* (New York, 1969), pp. 57-58; National Archives, Washington, D.C. (hereafter DNA) Record Group (hereafter RG) 45, Captains' Letters Received by the Secretary of the Navy, 1813, vol. 1, Vice Admiral Herbert Sawyer, 'Secret Memorandum,' 27 July 1812; Public Record Office, London, Admiralty

issued by the Board of Trade in London, by the lieutenant governor of Nova Scotia, by the commander of the Royal Navy's North American station, and by the former British minister and consuls in America during the first six months of the war may have amounted altogether into the thousands.[3] American merchants willingly paid the steep fee demanded for them. *Hiram*'s owner bought a license at the cost of one dollar for every barrel the vessel could carry, and *Monson*'s paid $1,133 for a license to transport a cargo valued at $12,000. Signed licenses, in which the spaces for inserting the names of the vessels and their masters were left blank, passed among the merchants at high prices.[4]

Many Americans condemned dealing in British licenses as commerce with the enemy. In Baltimore, angry mariners and dock workers damaged some vessels loading provisions for the peninsula. Naval officers hated the trade for a reason in addition to patriotism: It competed directly with them for seamen. An officer at Alexandria, Virginia, reported difficulty drumming up recruits because of 'the horrid class of Licensed vessels,' whose crimps even bribed away the musicians he hired for his rendezvous.[5]

Despite popular denunciation of the licensed trade as traitorous, American merchants considered it perfectly legal to possess and to use an enemy license to carry goods to a neutral port unmolested. They contended that such trade did not constitute intercourse with the enemy and, hence, did not subject vessel and cargo to seizure or condemnation as prize of war. Without a British license, trade with any neutral port was unquestionably lawful, and the merchants thought it simply clever practice to take advantage of an indulgence granted by the enemy that made such traffic safer. Both the secretary of the treasury and the attorney general of the United States advised merchants that, barring a statute, possession and use of the licenses were legal. Even former president Thomas Jefferson, a staunch supporter of the war, defended the licensed trade as beneficial to the nation.[6]

The American declaration of war in June 1812 authorized privateering against British ships and property, in effect sanctioning seizure of American vessels engaged in trade with the British.[7] In prize law, vessels trading with the enemy, with their cargoes, were by construction enemy property. A law of 6 July set penalties for trading with the enemy and outlawed accepting a license from the British government to trade with any port or place in the British dominions.[8] But congressmen from agricultural exporting states were reluctant

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1/503, Admiral Sir John B. Warren to the Lords Commissioners of the Admiralty, 11 Nov. 1812, with enclosures. Examples of the licenses can be found in: Graham, *Sea Power and British North America*, pp. 211-12, note; United States Supreme Court, *Prize Cases Decided in the United States Supreme Court, 1789-1918* (Oxford, 1923), 1: 494-97, 512-14; and W. S. Dudley, ed., *The Naval War of 1812: A Documentary History* (Washington, 1985), 1: 492-93. On the licensed trade, see also J. P. Cranwell and W. B. Crane, *Men of Marque: A History of Private Armed Vessels Out of Baltimore During the War of 1812* (New York, 1940), pp. 32-33; W. A. Fairburn, *Merchant Sail* (Center Lovell, Maine, 1945-1955), 2: 837-45; J. R. Garitee, *The Republic's Private Navy: The American Privateering Business as Practiced by Baltimore During the War of 1812* (Middletown, Conn., 1977), pp. 50-53; D. R. Hickey, 'American Trade Restrictions during the War of 1812,' *Journal of American History* 68 (1981): 517-38; S. E. Morison, *The Maritime History of Massachusetts, 1783-1860* (Boston and New York, 1921), pp. 205-6; and B. Perkins, *Castlereagh and Adams: England and the United States, 1812-1823* (Berkeley and Los Angeles, 1964), pp. 7-9.

3. Licenses issued by the Board of Trade were known as Sydmouths and Prince Regents. As early as 27 July 1812, Vice Admiral Herbert Sawyer cited 254 licenses issued by different authorities on the western side of the Atlantic Ocean (Sawyer, 'Secret Memorandum'). Galpin counts 500 issued before 1 September 1812 ('American Grain Trade,' p. 33); Perkins notes that 'in one month in 1812 the British issued 722 licenses of American grain shipments to Lisbon and Cadiz' (*Castlereagh and Adams*, p. 9). Graham says that under the licensing system a flourishing trade developed between New England and Nova Scotia and New Brunswick (*Sea Power and British North America*, p. 213). Flour exports from the United States to the Peninsula amounted to nearly one million barrels in each of the years 1812 and 1813 (Galpin, p. 25, note).

4. *Prize Cases Decided in the Supreme Court*, 1: 652; Galpin, 'American Grain Trade,' pp. 33, 38.

5. Garitee, *Republic's Private Navy*, p. 50; DNA, RG 24, William Laughton, Logbook of Gunboat *No. 71*, 10 Sept. 1812-3 Nov. 1813, entry for 16 Oct. 1812.

6. Fairburn, *Merchant Sail*, p. 839; Galpin, 'American Grain Trade,' pp. 34-39; Garitee, *Republic's Private Navy*, p. 50; Morison, *Maritime History of Massachusetts*, p. 205; Perkins, *Castlereagh and Adams*, p. 8; and the argument of the appellants in the case of *Aurora*, in *Prize Cases Decided in the Supreme Court*, 1: 514-16. In a letter to James Ronaldson, 12 Jan. 1813, Jefferson gave several reasons why Americans should continue to supply grain to the British enemy: (1) America could not starve the British by withholding supplies, 'and if she is to be fed at all events, why may not we have the benefit of it as well as others?'; (2) the British were fighting America's battles in Europe, for if Napoleon were to drive the British from the Iberian peninsula, he would very likely exclude Americans from that market; (3) 'if we could, by starving the English armies, oblige them to withdraw from the peninsula, it would be to send them here'; (4) profits from the trade helped pay war taxes; and (5) 'to keep the war popular, we must keep open the markets.' H. A. Washington, ed., *The Writings of Thomas Jefferson*, 9 vols. (Washington, 1853-1854), 6: 93. Jefferson's arguments are, at least in part, specious. Take his third point, for example: In fact, it was not British defeat, but British victory in Europe that freed her military forces for the American theater.

7. R. Peters, ed., *The Public Statutes at Large of the United States of America* (Boston, 1861), 2: 755.

8. Ibid., 2: 778-81.

to prohibit the use of British licenses for carrying provisions to neutral ports.[9]

Nevertheless, the absence of a statute outlawing British licenses to trade with neutral ports did not mean possession of one was necessarily legal. United States courts exercising admiralty jurisdiction acted under both statute law and the law of nations. The courts could find that under the latter the mere possession of a protection from an enemy in an otherwise innocent trade gave the vessel a hostile character. In that event, they would uphold the propriety of the seizure of licensed American vessels by United States public and private warships and condemn the captured vessels and their cargoes as good prizes of war.

The unresolved question of legality did not deter many naval officers from seizing licensed vessels, but legal limitations did make it difficult for them to discover evidence of the merchants' wrongdoing. International law limited the rights of the commanding officer of a belligerent ship of war when he stopped a merchant vessel at sea. He had the right to examine her papers in order to determine the nationality of the ship and of her cargo; based on what he found in those papers, he was to determine whether he had reasonable grounds to take a prize. In addition, forgery, concealment, and destruction of papers constituted reasonable grounds for capture. The ultimate determination of whether the seizure was reasonable and whether the facts justified condemnation of vessel and goods as prize of war remained with the law courts of the belligerent's nation. If the merchantman's master handed over his ship's papers for examination, the belligerent commander had no right to search the merchant vessel for concealed papers without sufficient cause. Thus, in the War of 1812, when an American naval officer examined the papers of a merchantman at sea, he might find all the papers in order, showing that she was American-owned, carrying American produce from an American port to a neutral port. Finding nothing amiss or illegal, the commander would be obliged to let the vessel continue on her voyage. He would have no way of knowing whether the master concealed somewhere on board a British license. The problem confronting American naval officers was to get the merchant captain to produce the license voluntarily. The solution they most commonly attempted was to trick the merchant captain into believing that they and their ship were British, not American.

Similarities between the belligerents in the War of 1812 facilitated such a ruse. British and American spoken English were alike enough that many Americans could easily pass for Englishmen, at least to other Americans. The impressment controversy that preceded the war rested on the ease with which Englishmen could pass for Americans. In addition, the construction of the ships of the two countries was similar enough that many merchant captains could not distinguish between them, while even the uniforms of the opposing officers were close enough in design to be mistaken for each other. Once during the war, when the United States frigate *President* arrived off Rhode Island, Block Islanders determined her nationality only by the eagles on the buttons of her officers.[10] Some United States Navy vessels carried British uniforms on board for the purpose of concealing their true identity. The officers of *President* were able to capture the signals of HM tender *Highflyer* by boarding her in British uniforms.[11] Carrying suits of foreign flags on board warships, both for signalling and for executing various ruses, was standard practice.

Despite these advantages, American naval officers did not always succeed in duping the officers and men of the merchant vessels. Sometimes their ruse was discovered, as in the case of *John & Adam*. Some licensed traders realized the ease with which the trick could be executed and learned to be wary. Owners of one licensed vessel smuggling produce into Canada instructed the master:

> You will of course secrete every thing respecting the transaction. In case of British interruption we must recommend your being well assured that there is no deception, as you must be aware of the facility with which American cruisers may pass for English. . . . When in with any of the B.[ritish] B.[lockading] squadron, come forward with your Ex.[port] Li.[cense] which will safely pass you. . . . If you have any suspicions destroy all at once.[12]

Naval officers contended with a sailing community that had a long tradition of practicing deception to avoid import duties and to circumvent British and French

9. Perkins, *Castlereagh and Adams*, pp. 8-9.

10. DNA, RG 45, Miscellaneous Letters Received by the Secretary of the Navy, vol. 6, Charles Holt to Robert Peck, 28 Sept. 1813.

11. Public Record Office, Admiralty 1/504, John Hutcheson to John B. Warren, 21 Sept. 1813.

12. *Prize Cases Decided in the Supreme Court*, 2: 918-19.

commercial regulations. Success of their ruse depended on the gullibility of the merchant officers and crew and upon the ingenuity and acting abilities of the masqueraders.

Records of two incidents involving the United States frigate *Congress* offer a detailed view of naval officers executing the ruse. The case of *Eleanor* illustrates how the trick could succeed too well, producing comic-tragedy. That of *Bedford* shows how the charade could be carried off with flair.

On 8 October 1812, the United States frigate *Congress,* Captain John Smith, set sail from Boston Harbor for a joint cruise with the frigate *President,* Commodore John Rodgers. On the 16th *President* captured the British post office packet *Swallow,* which was carrying some $200,000 in gold and silver. The two frigates lay to while transferring the specie to *President.* That dark and squally night, *Congress* left *President's* side to chase and bring to a schooner. Captain Smith sent Lieutenant Joseph Nicholson to examine her, with instructions to act the part of a British officer. Boarding alone in the midnight gloom, Nicholson ordered the master with his mate to take the schooner's papers to the frigate. As he complied, the master heard Nicholson asking the supercargo, agent for the shipper, if they had seen any of the American squadron.[13]

In the captain's cabin in *Congress,* master William Graham presented his papers to Smith, who quickly saw that the schooner carried no British license. She was the Baltimore letter of marque *Eleanor,* manned by a crew of twenty-one and armed with six carriage guns, on a trading voyage to Bordeaux. The British did not license armed or commissioned American vessels, and certainly not to Bordeaux. Questioned about encounters with other vessels, Graham replied that he had met ships from neither American nor British squadrons. Graham believed he was on a British frigate, but Smith now told him he was on *Congress* and was free to go on his way. Graham could not return immediately to *Eleanor,* however: *Congress* had set sail again to regain contact with *President,* and *Eleanor,* having little sail set, had not kept up. Not until 4 A.M. did *Congress* return Graham to his schooner. By then, disaster had visited *Eleanor.*

When Graham and his first mate were ordered to *Congress,* most of *Eleanor's* crew concluded they were British prisoners, went below, and broke open the rum. After telling the second mate to see that *Eleanor* stayed with the frigate, Lieutenant Nicholson learned from the supercargo the identity of the schooner. Standing by with a lantern, the master's boy asked what frigate the lieutenant was from. Nicholson replied, 'His Majesty's Ship *Shannon.*'

'I wish the United States frigate *President* were along side of her!' the boy exclaimed.

'Do you think she could do anything with her?'

'Yes, I am sure of it.'

The supercargo then recognized Nicholson as an old schoolmate from Baltimore, and Nicholson asked him to keep the secret from the crew, since his orders were to conceal his true identity.

When Nicholson asked the second mate why they had not kept with the frigate, he learned that the men, believing themselves prisoners, would not set the sails. Before he could convince them they were not prisoners, a squall struck. Having too much sail set aft, the schooner pivoted into the wind and broached, the mainmast and then the foremast gave way, smashed the transom, opened the deck, and broke one of the pumps.

Finding his schooner too far damaged to sail back to port, Graham agreed with Commodore Rodgers that he and his men would take over as prize master and crew of the packet *Swallow.* Succeeding days of stormy weather forced the abandonment of *Eleanor* before her cargo could be transferred to the prize.

When Graham returned to Baltimore, *Eleanor's* owner brought suit against Smith and Rodgers for damages. He argued that unlawful deception resulting in the failure of *Eleanor's* crew to obey the second mate's orders, and the incompetence of Lieutenant Nicholson in navigating her while he had command caused the loss. The district court found for the plaintiff. 'Such deception is indeed admissable in war in relation to the enemy,' wrote the judge, 'but the belligerent adopts it at his peril, and if an innocent party is

13. This and the succeeding paragraphs on the encounter between *Congress* and *Eleanor* are based on: National Archives and Records Administration, Federal Records Center, Waltham, Mass., RG 21, United States District Court for the District of Massachusetts, 'John Donnell v. John Smith and John Rodgers,' in Case Files, bundle 28, part VII, and in Prize Records, 3: 319-97; *American State Papers: Documents, Legislative and Executive, of the Congress of the United States . . . Selected and Edited Under the Authority of Congress . . . ,* 38 vols. (Washington, 1832-1861), Naval, 1: 408-15; *Prize Cases Decided in the Supreme Court,* 2: 942-51; and DNA, RG 45, Letters from Collectors of Customs Relating to Commissions of Privateers, 1812-1815, vol. 6, John Donnell, application for commission, 1 Oct. 1812.

injured by the indulgence of such a practice there should be adequate redress."[14]

On 15 March 1817, the United States Supreme Court found the lower courts in error and dismissed the libel. The court reasoned that the right to detain a vessel for examination 'necessarily carries with it all the means essential to its exercise; among these may, sometimes, be included the assumption of the disguise of a friend or an enemy, which is a lawful strategem of war.' The crew were at fault for abandoning their duty before being formally made prisoners, and Nicholson could not be held responsible for the mishandling of the schooner, since he had never actually taken command of her. Thus, the Supreme Court vindicated the navy's use of this *ruse de guerre* against American merchant ships.[15]

Although the high court relieved the naval officers of liability in *Eleanor*'s loss, neither Captain Smith nor Lieutenant Nicholson stand exculpated of all blame. Captain Smith was responsible for sending Nicholson on board *Eleanor* alone, for abandoning Nicholson for nearly four hours, and possibly for making his orders to maintain the pretence of being British too rigid. Sending a sole boarder onto *Eleanor* minimized the risk of spoiling the deception by someone's being recognized, a very real danger, as the event proved. Yet, if Nicholson had had a handful of men with him, he should have been able to handle the schooner without the cooperation of *Eleanor*'s crew. Left alone for such a length of time, he was exposed to the threat of violence from a crew convinced he was an enemy. Nicholson's errors seem to have been those of inexperience. As soon as he saw the carriage guns on board, he should have realized *Eleanor* was not a licensed vessel and dropped his charade. Furthermore, he should have made sure that the master left an officer of sufficient authority on board, instead of taking his first mate with him to *Congress,* as long as the crew were under the misapprehension that they were prisoners of the British and the command of the vessel was in doubt. Smith's and Nicholson's mismanagement conspired with circumstances to produce a fiasco.

Two months after the *Eleanor* episode, still on the same cruise, *Congress*'s officers executed the ruse in a more professional and elaborate fashion. On the afternoon of 16 December, cruising with *President* under British colors, *Congress* gave chase to a ship, which, when fired upon, hoisted an American flag and bore down on the frigate. Captain Smith directed Lieutenant John Elton to board the ship and, if possible, to find out whether she was sailing under the protection of a British license. This time the lieutenant took a boarding party with him. Elton played his part with bravado. He peremptorily ordered the master to get his papers and to go in the frigate's boat to see Captain Digby of His Majesty's frigate *Lavinia,* at the same time passing *President* off as the British frigate *Huzzar.*

On board *Congress,* master Jeremiah Dennett informed Captain Smith his ship was *Bedford,* five days out from Baltimore, bound for Lisbon with a cargo of flour, corn, and bread. In the meantime in *Bedford,* Elton learned from the mate that they had a license. In order to get the mate to produce it, Elton invented a story: The officers of the British North American station had orders to stop all American vessels unless their licenses were signed by the new commander, Admiral Sir John Borlase Warren, who vowed to be very particular with licenses. The mate believed the license good but could not say by whom it was signed. He undertook to search for it.

Dennett now returned from *Congress,* alias *Lavinia,* to get his license to show Captain Smith, alias Digby. By then *Congress* and *Bedford* had come up with *President.* One of *Congress*'s men on board *Bedford* accidentally let drop the name *President.* Put on his guard, Dennett said that he knew all along she, referring to *Congress,* was *President.* Elton forced a hearty laugh and said he wished *President* was as near *Huzzar* or *Lavinia* as their two ships were now to each other. Dennett observed that if *President* were, she would flag them, as she was a very heavy frigate. Elton had maintained the deception, for Dennett returned to *Congress* and produced a British license. Smith kept up the pretence a little longer, ordering a prize master and crew on board *Bedford* to take her to the British port of Halifax. When *Bedford*'s crew were transferred to *Congress,* many went under the impression they were British prisoners.[16]

14. *American State Papers, Naval,* 1: 410.

15. *Prize Cases Decided in the Supreme Court,* 2: 942.

16. National Archives and Records Administration, Federal Records Center, Waltham, Mass., RG 21, United States District Court for the District of Massachusetts, 'Samuel Ham *et al.* v. John Smith *et al.*,' in Case Files, bundle 29, part XI. Despite the complete success of this operation, *Congress*'s officers and men never received any prize money

After the *Eleanor* disaster, *Congress*'s officers altered their practices in boarding merchant vessels. They made sure the frigate remained in support of the boarding officer and did not send him alone, even though it meant increasing the chance of giving away the game. Once Lieutenant Elton had proved his ingenuity in the *Bedford* caper, Smith relied on him as a boarding officer. In *Congress*'s log for the subsequent cruise, May to December 1813, the boarding officer is mentioned by name three times, always Elton.[17]

The civilians in the Navy Department were less assured of the propriety of seizing licensed vessels than were naval officers. Soon after taking office in January of 1813, Secretary of the Navy William Jones was forced to confront the issue directly. In October, Commodore Stephen Decatur, of the frigate *United States,* had forwarded to the Navy Department a number of British licenses to export produce to Lisbon and Cadiz found among the papers of the American ship *Mandarin*. He believed Congress would interdict use of the licenses and desired to apprise the government of the extent of the practice. In December, when he found on returning from his next cruise that the licenses had not been outlawed, Decatur asked that they be 'transmitted to their respective owners unless the Government think it proper to dispose of them otherwise.'[18] The owners entreated both the commodore and the new secretary of the navy for their property. A letter from one merchant firm illustrates their thinking:

> As Commodore Decatur has agreed that the passports may be forwarded as directed; and as the use of them in the U. States has become very general, as you well know, we presume you will not interpose to prevent our benefitting by them, as many of our fellow citizens have done, until Congress forbid it. Be assured that our practice has always been, to respect the Laws to the best of our judgement.[19]

At the end of January, Jones came into possession of a copy of a secret memorandum from the commander of the British North American station addressed to the commanding officers under his command, detailing the number of licenses issued by the former British minister to America, by the Governor of Nova Scotia, and by himself. The memorandum includes the names of several merchants to whom the licenses had been issued and descriptions of the flag signals by which their ships might be known. Because he had a copy only and not the original, Jones doubted whether the navy could act decisively upon the information it contained.[20] Uncertain of the proper course, Jones asked Attorney General William Pinkney's opinion whether he could 'lawfully, or reasonably, withhold the licenses from the persons claiming them, and to whom they were directed.'[21] Pinkney's reply was equivocal. The attorney general was

> not aware of any sufficient Inducement on the part of the government for detaining *these* Licenses—although it will be manifestly right to detain some others of a different Description whenever they may fall within the Power of the government or its officers.

He advised Jones to return the licenses to Decatur who either should turn them over to the District Court in which the case of *Mandarin* was being heard, or, if such proceedings were not pending, would probably deliver them to the persons to whom they appeared to belong.[22]

By the summer of 1813, cases of American merchant vessels seized for possessing British licenses were being decided in the federal courts. Most of the judges condemned the vessels on the general principle of their being denationalized by the acceptance of enemy protections. The United States Supreme Court upheld these judgments on 7 March 1814. The court determined that sailing on a voyage under the license and passport or protection of the enemy, in furtherance of his views or interests, even though the voyage was to a neutral port, constituted such an act of illegality as subjected ship and cargo to confiscation as prize of war. 'It is unlawful in any manner,' wrote Justice Joseph Story for the court, 'to lend assistance to the enemy, by

from *Bedford*'s capture: Before she reached the safety of an American port, *Bedford* was taken by a British sloop of war.

17. DNA, RG 24, U.S.S. *Congress* Logbook, 29 Nov. 1811-30 May 1814.

18. DNA, RG 45, Captains' Letters Received by the Secretary of the Navy, 1812, vol. 3, Stephen Decatur to Paul Hamilton, 12 Oct. 1812; ibid., 28 Dec. 1812.

19. DNA, RG 45, Miscellaneous Letters Received by the Secretary of the Navy, 1813, vol. 1, William Montgomery & Son to William Jones, 21 Jan. 1813. See also ibid., Abijah Bigelow to William Jones, 11 Feb. 1813.

20. DNA, RG 45, Captains' Letters Received by the Secretary of the Navy, 1813, vol. 1, John H. Dent to William Jones, 21 Jan. 1813; DNA, RG 45, Private Letters, 1 Feb. 1813-20 Jan. 1840, William Jones to John H. Dent, 1 Feb. 1813.

21. DNA, RG 45, Private Letters, 1 Feb. 1813-20 Jan. 1840, William Jones to William Pinkney, 5 Feb. 1813.

22. DNA, RG 45, Letters from the Attorney General, June 1807-Nov. 1825, William Pinkney to William Jones, 13 Feb. 1813.

attaching ourselves to his policy, sailing under his protection, facilitating his supplies, and separating ourselves from the common character of our country.'[23]

Thus, the high court vindicated the instincts of the naval officers who acted as if the possession of an enemy's license was clearly illegal, notwithstanding the doubts of civilian leaders of the executive branch of the government. So too, in the case of *Eleanor* would the court uphold the officer's use of deception against their countrymen to uncover the licenses.

Right, however, does not make might. The navy had too few ships in the Atlantic during the first year of the War of 1812 to interdict much of the licensed trade directly. It was congressional action in conjunction with a change of British policy that eventually restrained the licensed trade. During the second summer of the war Congress authorized penalties for possession of a British trade license of any description. The act became law on 2 August 1813.[24] By then, the prohibition was all but academic. With the opening of Baltic ports to Atlantic commerce, the British Board of Trade ceased issuing licenses for the Peninsula in November of 1812, although the licensed trade to Britain's American colonies continued. Early in 1813 the Royal Navy began turning back outward-bound licensed vessels south of Narragansett Bay and would extend the blockade to the north the coming winter.[25] In the meantime, for their part, the United States Navy, together with the scores of privateers who used similar tactics to capture the licensed ships,[26] increased the risks of merchants who accepted enemy protection,[27] and unnerved masters they examined at sea who had to decide whether to produce their licenses for officers of undetermined nationality.

Was the licensed trade treasonous, as many naval and privateering officers believed? The willingness of American merchants to engage in the licensed trade to the Peninsula might be compared with the willingness of New Englanders and agriculturalists along the northern border to trade by sea and overland with Canada. The Canadian trade, outlawed by statute, was clearly treasonous, for provisions from the United States were crucial for sustaining British military forces in Canada, while the Peninsular trade was only indirectly with an enemy fighting a different foe. Yet, in each case enemy forces were supplied, and economic ties between regions—the northern United States and Canada, and the mid-Atlantic states and Spain—transcended patriotic considerations.[28]

If the licensed trade to the Peninsula was at best of questionable legality, circumstances mitigated the culpability of the licensed traders. Several leaders of the administration conducting the war, influenced by the crying need for revenue, provided almost exclusively by customs receipts, thought the trade legal. Even the secretary of the navy was uncertain. The refusal of the American government for a year to halt the British licensed trade can be considered but another of many instances of its failure to mobilize the full resources of the nation in the war. Nevertheless, although the law of nations took any commerce with an enemy to be proscribed as a matter of course, allowance of the licensed trade accorded with the practices of the period. It was not an age of total war. During the Napoleonic era the ultimate intent of commercial warfare was not to destroy completely the trade of the enemy country, but rather to drain its wealth by stopping its exports and forcing it to purchase one's own. When they believed a particular trade benefitted their own country more than it benefitted the enemy, governments often allowed it. The licensing system, itself, is proof that economic blockades in the early nineteenth century, in contrast to those of the twentieth century, were not designed to be total. Within this context, given the absence of alternative safe markets, the merchants' pur-

23. *Prize Cases Decided in the Supreme Court*, 1: 509. This was the case of *Julia*, which had been carrying provisions from Baltimore to Lisbon when taken prize on 31 December 1812, by the frigate *Chesapeake*, Samuel Evans commanding, for sailing with a British license. The Supreme Court also condemned *Aurora* on 7 March 1814, on the same grounds, ibid., 1: 511-24.

24. Peters, *Statutes at Large*, 3: 84-86. The fullest account of the politics behind the American outlawing of the licensed trade is Galpin, 'American Grain Trade,' pp. 34-41; supplement this with J. C. A. Stagg, *Mr. Madison's War: Politics, Diplomacy, and Warfare in the Early American Republic, 1783-1830* (Princeton, 1983), pp. 274-75, 318-20.

25. On the British change of policy, see Galpin, 'American Grain Trade,' pp. 43-44.

26. Garitee, *Republic's Private Navy*, p. 51; Fairburn, *Merchant Sail*, 2: 839-41.

27. 'If our ships of war and privateers are allowed to bring in vessels that have licenses,' complained one Virginian grain merchant, 'then they may also bring them in on suspicion of their having them.' Metcalf to William Montgomery and Baxter, 14 Nov. 1812, quoted in Galpin, 'American Grain Trade,' pp. 37-38.

28. On the Canadian trade, see R. C. Stuart, 'Special Interests and National Authority in Foreign Policy: American-British Provincial Links During the Embargo and the War of 1812,' *Diplomatic History* 8 (1984): 311-28.

chase of enemy protection is, if not justifiable, at least understandable.[29]

While the licensed merchants embraced the mercantilist spirit of commercial warfare, naval personnel and privateers followed the letter of international law. Even many Royal Navy officers found the licenses morally repugnant and refused to honor them.[30] The animus of American naval personnel and privateers against the licensed traders is readily explained. Sailors of armed ships risked death at the hands of the very men with whom their fellow citizens cooperated. Although the lure of prize money from seized licensed vessels reinforced the tendency to denounce the trade, the sailors knew that legal condemnation was uncertain, and that they might very well be sued for improper captures. Patriotic sentiments and abhorrence of commerce with the enemy seem to have been the foremost motives in the navy's campaign against the British licensed trade.

29. For the place of licenses in the commercial warfare of the era, see E. F. Heckscher, *The Continental System: An Economic Interpretation* (Oxford, 1922), pp. 11-55, esp. 40-42. The licensed trade was not entirely free from Royal Navy interference, for British officers frequently stopped licensed vessels returning from the Peninsula and confiscated their cash. Fairburn, *Merchant Sail*, 2: 842-43. For their part, some American merchants used the licenses permitting them to transport grain to the Peninsula as a cover to smuggle cotton. Brynmor Jones Library, Hull University, Hull, England, Hotham Collection, Standing Orders on the North American Station, July 1811-July 1814 (DDHO 7/45), Admiral Sir John B. Warren, General Memorandum No. 94, 23 Sept. 1813.

30. Fairburn, *Merchant Sail*, 2: 843.

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Some Notes on the Paper of the *Atlantic Neptune*

Edwin B. Newman and Augustus P. Loring*

FOR a person who believes that any collection should be well-ordered, the *Atlantic Neptune* presents a challenge of heroic size. It represents a near endless variety of charts and views and sailing instructions, and the variations in each over a span of roughly forty years makes any simple ordering impossible to achieve. The result is that aspects of the material that are simple or even trivial become themselves a further challenge asking for order in their own right. Such is the case with the problem of the paper on which the hundreds of plates of the *Neptune* are printed. The following are our notes covering what we have been able to discover about this subject.

The *Atlantic Neptune* is the first good marine atlas of the Eastern seaboard of North America from Montreal to the Mississippi. In many instances it provided the first accurate charts of this area and also many views of the landscape which have a great deal of historic value. It is thought by a great many people to be the greatest marine atlas that has ever been published. It first appeared in 1774 and was published as late as 1802. Henry Stevens, the book dealer and scholar, assembled his great collection which is now at the Maritime Museum in Greenwich, England. He was well aware of the variety of papers used in the atlas when he wrote a *Bibliography of the Atlantic Neptune* and many places uses the papers and watermarks to differentiate the different states. Unfortunately, he varies in the completeness of the information he records but he does set out the main lines covered more fully in the present account.

The *Atlantic Neptune* was printed substantially on four kinds of paper. They follow each other in a clear order and one can put some starting and ending dates on each. Woven into this sequence are at least three other varieties of paper which are in a way links among the basic four. By now we know a good deal more about the sources of some of the types of paper than did Stevens, and this information helps us in classifying the charts themselves.

The story in outline is this. Commencing in 1774 all of the early charts were printed on a 'laid' paper (paper made in a mold with many closely spaced wires forming its bottom) that came from Holland. It carried a large watermark consisting of a fleur-de-lis and a shield below which were the three initials 'L V G'. It also had as a countermark the two initials 'I V'. We call this, not unreasonably, LVG-IV paper.

Nearly three years later, in 1777, a fairly sudden shift was made to a somewhat larger laid paper which carried on the one side the watermark 'J BATES' and the countermark 'J B'. Probably well over half of the known plates from the *Neptune* are on this Bates paper, including the monumental copies made for King George III and the Princess Eugenia. Bates paper was used until the end of 1781.

In the next few years there are few dates that one can attach with certainty because the changes made in the plates did not include changed imprints. But what can be said is that, in the years soon after 1781, Bates paper was replaced by a somewhat thinner paper carrying the mark 'Whatman' or 'J Whatman'. The use of this paper probably continued to about 1790.

At this time there first appears a 'wove' paper (the fine wires of the mold were woven into a screen), and this wove paper in many instances carried a watermark of either 'Smith 1801' or 'Smith 1802.' This mark is

* The authors are indebted to Dr. Frank Trout, Curator of the Winsor Map Collection, Widener Library, Harvard University, for assistance and particularly for his tolerance of their irregular work schedule.

near one corner of the paper, and is duplicated upside down in the diagonal corner. Some unmarked wove paper may have been used as early as 1790, and it was used generally near or after 1800.

Having set out quite starkly this basic ordering, it becomes necessary to say at once that there are dozens of exceptions and inconsistencies. It is not possible to go from the fact that a chart is on a given kind of paper to the conclusion that it was produced in any narrow time frame. For the most part, the inconsistencies arise because either (1) impressions continued to be made over quite a number of years from plates carrying a specific imprint date, and (2) stocks of both printed charts and of unused paper were kept on hand also for a period of some years. Since the printer had the custom of selling charts singly as well as in bound volumes, there is added difficulty in fixing the date when a chart was issued.

An example from the Harvard collection will make this quite clear. There is a Table of Contents for what is called 'Part I,' a late arrangement of the charts that was published in 1781 or 1782. For a number of reasons, it is clear that this Table of Contents could not have been engraved before some time in 1781, yet it is printed on LVG-IV paper. General use of this paper stopped in 1777. By 1781 the English were at war with the Dutch and had shut off any cross-channel trade. Just how and why this list is on LVG-IV paper we will never know. But it is obviously a maverick.

Let us now go back to the four basic kinds of paper and see what we know about each, and then we need to turn to the three minor types.

The large fleur-de-lis and shield of the LVG mark is moderately well known among the watermarks of Holland and France in the middle years of the 18th century. There are three or four variants but they are nearly enough alike to be easily recognized. Most of them also have the initials, 'LVG', at the bottom. They are presumed to be the initials of one Lubertus van Gerrevinck who was the proprietor of the Phoenix Mill in Egmond a/d Hoef commencing in 1690. Lucas van Gerrevinck of Alkmaar, a larger town some five miles away, was operating the Phoenix Mill in 1730, and Abram and Isaac van Gerrevinck were listed as the proprietors of the mill in 1733, once again in Egmond.

This was a period when the best quality in paper came from French and Dutch mills. The reputation of German paper had declined. Italian paper did not reach the market in northern Europe. There were relatively few English mills and their output was not particularly distinguished. It seems fairly clear that DesBarres' printer used paper that would have been considered a superior paper for that time, and it would have been easily procured from a mill just across the Channel in Holland.

The other half of the LVG-IV mark was also well-known. It presumably was the initials of a family of French paper-makers. The initials were, however, not 'IV' but rather 'JV'. They stood for the name Jean Villedary. It had been associated with several mills over a period of ninety years, from 1668 to 1758. One was in Angoumois, a province between Bordeaux and Limoges in central, western France. The mill was said to be in La Couronne, a small town just outside of Angouleme, the principal town in the province. Villedary was later connected with a mill in Beauvais, 40 miles north of Paris. Still later, after 1758, the IV mark was used in Hattem, a town on the Ijssel River in Gelderland, a province in Central Holland.

In all this time the 'IV' had been accepted as a hallmark of excellence. It was not infrequently produced in combination with another mark, as in the case of LVG-IV paper with which we are concerned. It is possible that the mark became a kind of claim to a level of quality rather than a mark of ownership or proprietorship. The use of the I rather than the J was simply a matter of the orthography of that time.

Most of the LVG-IV paper was a fairly hard, thin paper. It was the smallest paper used for the *Neptune*, from 30.5 to 31.0 inches in the longer dimension and from 22.5 to 23.0 inches wide. These dimensions are to the uncertain limit of a deckle edge. Most of the charts were trimmed to a size slightly smaller when they were bound but there are enough that were sold singly to tell us about the original paper. Of the 225 charts on LVG-IV paper in the Harvard collection there is not a sheet more than 31 inches tall. It is also clear that the narrow volumes of 1777 and 1778 characteristically had a trim size of less than 31 inches even when many of the plates were printed on larger Bates paper that was now coming into use.

Our story about the Bates paper is again largely circumstantial as was our story of the LVG-IV paper. John Bates was a prominent citizen of Wycombe on the Wye River forty miles northwest of London. He owned and operated a paper mill at the marsh some two miles

below the town of Wycombe from about 1724. The location had been the site of corn and grist mills for perhaps two centuries before that, and it is still the location of the Wycombe Marsh Paper Mills Ltd. The Wye was well-known for its mills, no fewer than eighteen being recorded in the Domesday Book for the nine miles of the river. (It was also famous for its trout, some of which were taken to Australia by early settlers and are presumed to be the forebears of all the trout on that continent today!)

John Bates' son John was in charge of the mill in the 1770s and 1780s. He achieved some fame for the quality of his paper, for which he was honored in 1787 by a gold medal of the Society for Promoting Arts and Commerce. The Bates family continued in charge of the Marsh Mill until they sold it in 1818. Quite certainly the Wycombe Marsh mill produced the largest part of the paper on which the *Neptune* was printed.

The Bates paper was slightly coarser and heavier than the LVG-IV paper, and was also perhaps of a slightly different color. But these differences are very subtle, if indeed they are real. The substantial difference was, however, that the Bates paper was larger, particularly in the later years. The median size was 33.1 inches in height and 22.3 inches in width. These dimensions are so consistent that it is clear at least one mold had this size. We find a scattering of charts that are slightly taller, and it is not unlikely that there was at least one other mold a bit larger than the first.

The use of Bates paper in 1782 and later years seems to have declined. There is no obvious reason this should have happened. If John Bates got a Gold Medal in 1787, one would presume he was still very active as a papermaker. Perhaps the *Neptune* had encountered difficulties and could not afford the very best paper. Perhaps John Bates had found some more attractive market. But there is a real contrast. In 1781 the entire George III copy is printed on an elegant Bates paper, doubtless copies that were specially struck. Surviving charts that can with any certainty be ascribed to 1782 and 1783 now begin to appear on a mixed potpourri of papers. The suggestion is strong that the enterprise was not going too well.

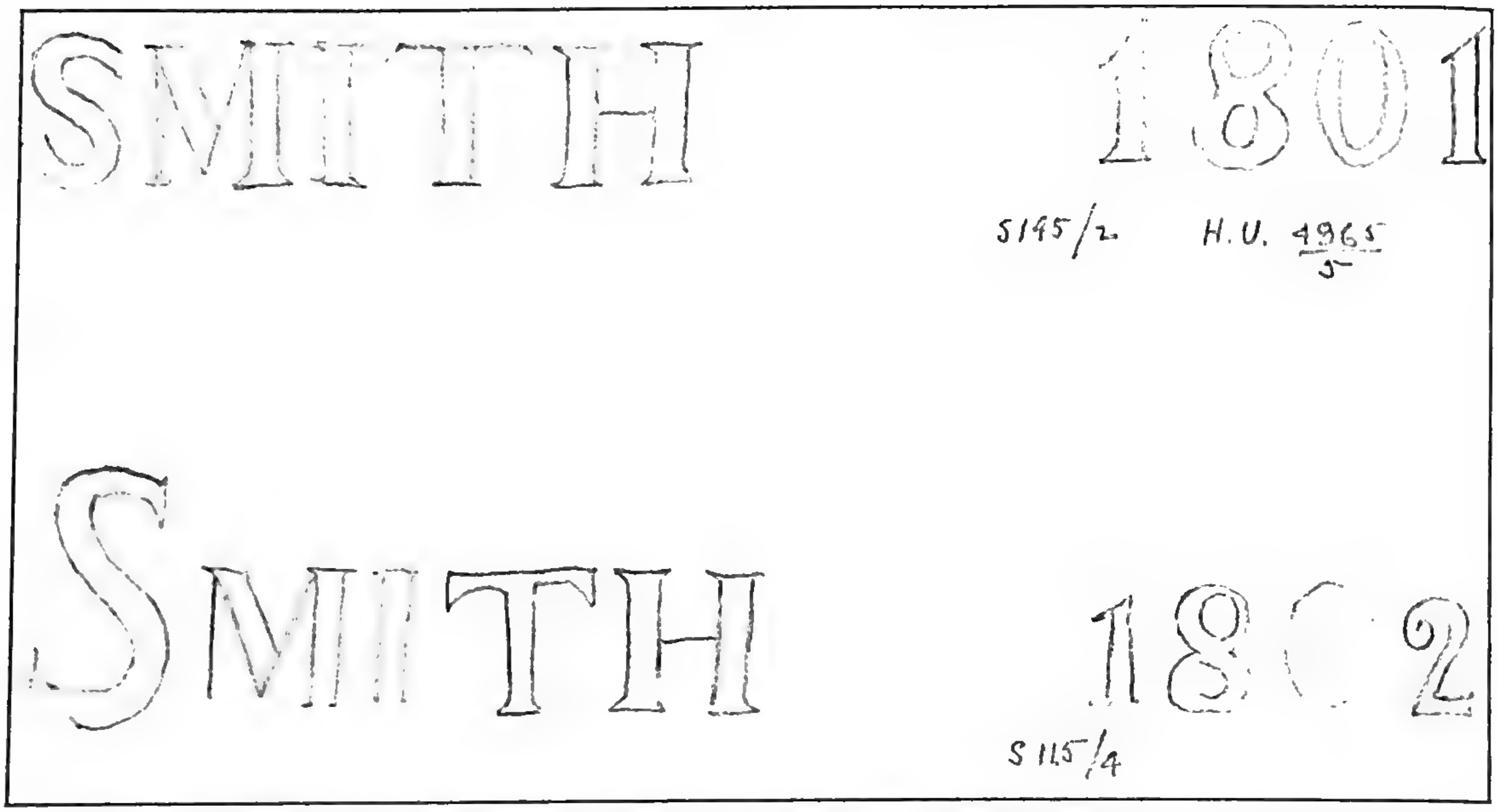
Starting in 1782 there begin to appear charts on paper produced by J. Whatman. Whatman was the proprietory of the Turkey Mill in Kent, on the opposite side of London from John Bates. He had been a papermaker since 1740. That he was well regarded can be concluded from the fact that the Royal Society negotiated with him for several years in an effort to obtain large sheets of high quality paper for their publications. Whatman was willing to bid, but insisted they pay the cost of special molds and other machinery which he felt would have limited usefulness. The record does not tell us just how much of the grand folio paper he ever made but his preeminence in papermaking is clear. However, by 1780 he had put much of the business in the hands of other members of his family and at the end of another dozen years the Whatman name had largely disappeared.

Unlike the LVG-IV and Bates papers it does not appear that DesBarres' printer ever made principal use of Whatman paper. It was used for only a few of the Nova Scotia charts and views plus a few of the general plates. One has the feeling that the printer ran out of a particular chart. To keep up his stock, he bought a small supply of large paper as the need arose. What was available from some London merchant was Whatman paper, so he bought it. In size it was just a little larger than the Bates paper, 33.5 inches high and 25.9 inches wide, and could easily substitute for it. The use of Whatman paper carries the message of a business that is respectable but hardly innovative.

At this time in England two important things were happening that would have a major effect on papermaking. One was that England was committed to a protectionist policy that required every effort to establish and maintain English manufactures against all foreign imports. This effort had, of course, been underway during much of the eighteenth century, but the 1790s saw several laws passed that were especially designed to restrict the import of paper. One of these laws required the use of dates in watermarks. It was intended to permit the importation of books printed abroad on British paper. The law was soon repealed but dates continue to be found for many years afterwards.

The second thing was that papermaking was on the threshold of major changes. There were not enough rags to satisfy the need for paper and in a very few years wood pulp began to take their place. At the same time there was active experimentation with machines, at first to make the hand molding less arduous but soon to create a continuous, belt-driven process.

It is not surprising, therefore, that wove paper makes its appearance. It was doubtless somewhat cheaper and may well at times have been all that was available. This



Tracings of the two Smith watermarks which were first noted by Mr. Loring. These marks, on wove paper, date the late editions of the *Atlantic Neptune*. (Taken from charts in the Winsor Map Collection of Harvard University.)

transition is not well documented but it is quite clear that most of the well-known mills either converted to the new techniques or disappeared from the scene. The last years of the *Neptune* clearly tell this story.

The most obvious thing for us was that wove paper appeared some time after 1783, and still later it appears with the Smith watermark dated 1801 or 1802.

Since this watermark has not previously been described a few words are in order here about its discovery. Some years ago one of us (APL) was offered two views of Boston which he already owned. The dealer who was offering them believed that the views were valuable but he was upset. He had offered them to a library who explained that they were only interested in material dated before 1800 and these views were clearly from 1802! What they did not recognize was that no one had ever seen such a date before. Mr. Loring bought the views.

The only earlier evidence of prints this late was the inference that Stevens had noted, namely, that a table of contents in an Admiralty copy of the *Neptune* listed St. John's Island as Prince Edward Island. The change to the latter name was made in 1799. Since our discovery we have found nearly thirty other plates printed on Smith paper. An account of these is another story. Let us say here that we know the Smith paper in two versions, 'SMITH 1801' and 'SMITH 1802.' The two marks differ in size. We have found marks that could be '1803' but they are not clear and we have yet to find one that is certainly of the third date.

Smith is not a name well known among papermakers. We have seen it in lists of roughly the year 1800 but entirely without any added clues. Someday a search of commercial documents of that period will tell who Smith was and where his mill was. That has not been done. The use of the dates is quite obvious. The requirement that they be used lasted only about four years, roughly from 1794 to 1798, but the custom of using the year was then established and continued for at least fifty years. We have found two other dates of '1802' on paper that was not Smith. The date alone quite clearly tells us nothing about the particular mill from which the paper came.

We said earlier that there were three minor variations to be added to the basic four. The most recent one we have just described, the use of a wove paper with no

watermark. It occurs for the latest state of perhaps a third of the *Neptune* plates. If our argument above is correct, it is probable that these were printed between 1785 and 1795. The date when the Whatmans gave up their operation of Turkey Mill is not certain—there is a scattering of paper with this mark into the '90s. It seems likely that the unmarked wove paper falls into this transitional period.

Much the same situation may have faced the printer fifteen years earlier. The problem was that the supply of paper from Holland became quite uncertain. American privateers began to harass English overseas trade by the end of 1776. In one incident in 1777 it was alleged that the governor of a Dutch colony in the West Indies had permitted the Americans to bring a British-owned prize into port. The governor was recalled but never punished. William Pitt, by then Lord Chatham, complained bitterly in 1778 about the half-hearted measures taken against the French who were trading openly with the Americans. The charges against the Dutch were the same. There is no very exact account of the deterioration of trade between England and Holland but it must have been serious. We do know that by 1780 England and Holland were at war.

We have not been able to find any direct evidence of when the paper from Holland would have been cut off. But that it stopped seems certain. What the *Neptune* tells us is that there is a very sharp cut-off in the use of LVG-IV paper for new imprints, which comes at the end of June 1777. And during 1777 there were a number of instances in which there were at least limited printings on unmarked, laid paper. Stevens repeatedly speaks of this as paper resembling Bates paper with no watermark. It is our guess that the printer was quite desperate for good paper and that the younger John Bates took this occasion to enlarge his undertaking by producing paper of larger size than what had been customary. He would have had to make new molds and his first molds would not have been supplied with the devices for the Bates watermark. All the evidence we have will permit this belief. The unmarked laid paper did resemble the Bates paper; it was the Bates paper in embryo.

This brings us to the last, and most serious puzzle about the *Neptune* paper. About the same time, late 1777, there appears a significant amount of paper with the fleur-de-lis and initials of the LVG-IV paper on one side and 'J Bates' as the countermark. This is a curious hybrid. On the one side it appears as a paper well known and produced for nearly a century in Holland. On the other side it is the product of a modest mill in England which for nearly as long had made a more commonplace paper.

There are two observations that can be made about

Radiographs of the watermark and countermark in two charts of the *Atlantic Neptune* printed probably in 1777. The fleur-de-lis and shield appear to be identical. The countermarks are totally different. (Beta-radiography by Craigen Bowen, Fogg Art Museum.)

this LVG-Bates paper. The first is that the LVG device is so closely the same as that on the LVG-IV paper as to suggest that the same mold was used to produce both. Watermarks do not, always, have great precision, and it probably is true that there were several molds being used at one time with similar but not quite identical devices. But we find it hard not to believe that this fleur-de-lis and shield actually came from Egmond where we assume the LVG-IV paper had been made. The second observation tends to confirm the first. The untrimmed paper size of the LVG-Bates paper corresponds almost exactly with the size of the LVG-IV paper. It is markedly smaller than the JB-Bates paper.

The story line that would tie all this together might be the following. By the spring of 1777 the printer in London was aware that the paper he needed to publish the *Neptune* was getting scarce, and his problem was likely to get a lot harder before it got any better. He began casting about to see what other options there were. He started dealing with John Bates who lived not far away in Wycombe and was quite willing to branch out, to enlarge a business that had stagnated in recent years under his father.

At first, John Bates made some larger molds and produced a paper that was at least satisfactory. But he had his eye on a more prestigeful market. The citation with his gold medal said of him that he 'manufactured paper equal to the French for receiving impressions from Mezzatints and other engraved paper plates.'

There was some movement of craftsmen from one mill to another. There were a number of Hollanders in the Wye valley (judging from names on the town rolls). So John Bates in 1777 conceived the idea of importing the knowledge and skill from Holland. I suggest that he went off to Holland and hired a master papermaker from the Phoenix Mill, that this man with his mold came to Wycombe, that they altered the mold by substituting 'Bates' for the 'IV', and that the Dutchman set about supplying paper to DesBarres' printer.

One of the next things that they would have done would have been to create a new product that clearly belonged to the Marsh Mill. It was not enough to have the Bates name on what appeared to be a foreign product. So they made some new, larger molds, and they provided them with 'J Bates' on the one side and 'JB' on the other. Gradually, the product was improved. Ten years later John Bates was recognized as one of the outstanding papermakers of England.

As with any historical account, there are gaps in this story we would like very much to fill. There are always other options. The LVG-Bates paper might have been produced in Holland on special order. Or the mold may have been stolen and smuggled to England. A very clever moldmaker might have copied the LVG device. But why should he? The main facts are clear. There must have been some kind of a close connection. And the key to identifying the link is the *Atlantic Neptune*. A musty two-century-old atlas tells its story of mystery and adventure.

Edwin B. Newman is Emeritus Professor of Psychology at Harvard University. He became interested in eighteenth-century maps of Eastern Maine and soon discovered the Atlantic Neptune. *He has examined the collection in Greenwich, the British Museum and the Admiralty as well as the six major collections in the Boston area. He adds a scholar's curiosity to the collector's expertise of Mr. Loring.*

Augustus P. Loring, who has collected marine charts for many years, acquired his first Atlantic Neptune *chart—of Cape Ann, Massachusetts, in 1953. He collected a large number of* Atlantic Neptune *charts and views during the next ten years from book dealers in London, New York and Boston. Loring and Edwin B. Newman are currently developing a bibliography of the* Atlantic Neptune.

Cliometrics: Its Application to Nautical Research

Norman N. Rubin

CLIO was the muse of history, metrics signifies measurement, and cliometrics is the application of mathematics to the problems of history. The use of mathematical solutions is not unique to the discipline of history. We have econometrics, which is the application of the mathematical approach to problems in economics. Biometrics is used in many aspects of research in biology and medicine. The social sciences and archeology have increasingly applied statistical analysis to their problems. Physicists have developed the field of quantum mechanics, a statistical approach based on Heisenberg's principle of uncertainty, to carry them beyond Newtonian physics into the realm of subatomic particles.

What is the mathematical approach to the problems of history? Basically it is a commonsense way of thinking that is used instinctively by most of us. Carried to its logical conclusions, the mathematical approach can be considered as a step-by-step process, with the following steps outlined by Blalock[1] for social problems, and applicable to every discipline:

I. First, define your problem, then look for information relevant to its solution. Often enough we find that the information does not suffice for a solution. It is then necessary to begin over, using revised data. In some cases, inferential methods may be needed to get the information, such as learning the size of guns on a ship by the size of cannonballs taken on board, or from the size and spacing of the gunports.

II. Classify the information that you have gathered. Sometimes the solution to a problem becomes evident when the data are classified or arranged in an orderly manner. Types of information may be:
   1. Nominal or qualitative; for instance, the names of classes, such as ships-of-the-line, frigates, or fire ships.
   2. Ordinal, or ordered classification, such as first-rate, second-rate, and third-rate ships-of-the-line.
   3. Interval or ratios. These are numerical data, for instance, first rates of 120, 100 and 90 guns.

III. Having ordered the data, that is, arranged them in an orderly form in categories relevant to the analysis, the next step is to analyze the ordered data. Mathematicians and statisticians have developed various methods to wring the meaning from a mass of data. These include:
   1. Ratios, or the relation of one number to another. The ratio is usually expressed as a fraction, frequently a decimal fraction. The most useful ratios are non-dimensional, involving numbers measured in identical units. The ratio, length/beam, is a pure number because the factor of 'feet' above and below the line has cancelled itself out, and the ratio can be directly compared with that of any other vessel. Other ratios, such as nautical miles per hour (knots), cannot be compared without allowing for factors such as the strength of wind, sea state, and the intent of the captain.
   2. Frequency distributions see the arrangement of numerical data as a plot of the value of the data vs. the frequency of its occurrence in the universe of information. The resultant curve is bell-shaped. Examination of the distribution of data among all possible values, is extremely important when one is seeking an 'average' value for the data. The commonly-used arithmetic average or midpoint 'mean' can be misleading, and is often different from the 'median' of the distribution. The frequency distribution may be found to be bimodal, having two peaks instead of one. This would indicate the presence of two variables in the information. Such a case might be found in calculating the median freeboard if data from frigates and ships-of-the-line were mixed together. Note that ratios as well as raw data can be plotted as frequency distributions.
   3. Multivariate analysis is a method or branch of statistical analysis useful for separating the contributing factors in a problem, and evaluating them. Its form and application are rather complex.
   4. Correlation and regression are statistical devices for

1. H. M. Blalock, *Social Statistics*, McGraw-Hill, 1972.

bringing order out of a scattergram, or a plot of one variable against another. The relationship may be linear or exponential, and may have multiple variables. Regression methods determine the most likely relationship of the variables, whereas correlation discloses the strength of that relationship.

5. Spectral analysis is a method of plotting data to bring order out of apparently random data such as wave heights.

IV. Having hypothesized an answer to the original problem, one should always attempt to prove the validity of the hypothesis. This can be done on a statistical basis, in terms of percent probability of accuracy, or it can be tested against known values. For instance, if the problem concerned a sequence of historical events such as the outcome of a battle, effort should be made to synthesize the sequence of events using the new-found insights, to see if known historic facts are encompassed. If the problem concerns the appearance or function of an artifact, or even of a whole ship, the performance achieved by employing the new knowledge must be checked against known or archival facts. Only when we can replicate known data, can the new knowledge be used for interpolation or extrapolation.

The selection of a system of mensuration requires some thought. Lewis, in his *Armada Guns,*[2] transformed his cannon data to the metric system. The whale study by Whitehead[3] was couched from the start in metrics. In the author's work on *Duras/Richard,* the dimensions of French East Indiamen were changed to the measures of France in the time of Louis XV because much of the information was already in those measures, and dimensions were liable to be in whole numbers in their native dimensions.

Let us now review the field of cliometrics as it has been applied to nautical research in the past, and see how the statistical approaches have been applied. In the nautical or maritime sphere, several areas have received statistical treatment. These have concerned the sea itself, or oceanography; and problems related to denizens of the sea. Studies of ordnance have all been ripe ground for the statistical approach, as are researches into differences and similarities between various ships and classes of ships. Recently the statistical approach has been used to recreate the plans of ships for which little direct evidence exists.

Oceanic research has in large part been an attempt to provide means for prediction of wave heights (crest to trough) and wave lengths (crest to crest). The results are summarized in the U.S. Hydrographic Office study by Pierson, Newman and James, *Observing and Forecasting Ocean Waves.*[4] The history of analysis of wave characteristics began in the 1840s with the work of Airy and Stokes. They considered wind-driven waves in deep water, and subsequent toilers in that vineyard have found that spectra could be plotted as wave height or amplitude vs. frequency, in a bell-shaped curve. The cumulative plots or spectra are s-shaped. Although the spectra provide knowledge of the characteristics of waves, they do not provide more than the probability that a wave of a given magnitude will occur in the future. If the wind strength and its fetch are known, a specific spectrum can be selected, from which the average and the highest ten percent of wave sizes and lengths can be determined. Despite this information, a navigator faced with the need to select the proper moment to have his ship come about, must rely as always on his 'seaman's eye.' The problem is akin to forecasting weather, and perhaps the development of computers powerful enough to predict waves, and reliable and compact enough for shipboard use, will be the answer to wave prediction.

Another use of spectra was in the analysis by Hal Whitehead in 'Why Whales Leap.' Data accumulated over years of observation of whales, were analyzed as a spectrum and showed that whales breach in areas of about ten kms. diameter, and in increasing numbers as wind speed increases. Rotund species breach more than slender ones, perhaps because the rotund species display more social activity than the slender ones, and the act of breaching seems to be a form of communication when wind and sea noises obscure normal vocalizations. In younger whales, breaching may be a form of exuberance.

Intensive work was done by Robert W. Fogel[5] in *Railroads and American Economic Growth,* on the relative social value of canals vs. railroads in the United States in the nineteenth century. A careful econometric study showed that if the effort and money spent on building railroads had instead been spent on enlarging the canal system, the economy would have been better off in the long run, as is evidenced by a resurgence in the use of

2. M. Lewis, *Armada Guns,* London, 1961.

3. Hal Whitehead, 'Why Whales Leap,' *Scientific American,* March 1985, pp. 84-93.

4. Pierson, Newman and James, *Observing and Forecasting Ocean Waves,* Hydrographic Office Publication 603, 1955.

5. Robert W. Fogel, *Railroads and American Economic Growth,* Johns Hopkins, 1967.

riverine systems and barge canals, while the railroads exist on government bounty. One of the tools used in the study was regression, to correlate rail rates and distances. To consider thousands of rail and canal routes and hundreds of commodities, sampling theory was used to reduce the number of computations. In considering the impact of railways on the entire economy, input-output studies were used. It must be noted that the railways tried to eliminate competition from waterborne commerce. They bought and decommissioned the many small steamship lines in the Chesapeake Bay area, and fought the St. Lawrence Seaway into the middle of the twentieth century. Fogel devoted a chapter to discussing the mind-set of historicists against the use of quantification in the discipline of economics. The same mind-set may be found in many marine historians!

In the field of ordnance, cliometric endeavor has been expended on an analysis of the guns and gunnery of the Spanish Armada and its English opponents. A further effort has been aimed at quantifying the 'Nelson touch.'

In M. Lewis' study, *Armada Guns,* the first problem was the identification and classification of the various gun sizes carried on the ships. Archival data were available on guns carried by the royal ships, although the size of the bores of many of the archaically-named guns was in some cases difficult to determine. The armament of the English auxiliary ships, mainly merchant vessels supplied by various ports, was not consistently recorded, and some data had to be arrived at by circuitous means. Spanish guns were recorded before leaving port, and in a few cases may be verified by trophies from captured ships, and from guns recovered from wrecks of Spanish ships around Scotland and Ireland. In the study, the guns were classified by range and by weight of shot. An incidental problem in using Spanish records was the interpretation of some of the gun names, and correlating them with the English names of the 1600s. Measures of length and weight varied throughout Europe; the Armada was drawn from several countries, so Lewis unraveled the skein of dimensions by translating all of them to the metric system. The Spaniards were provisioned with 100 shots per gun, the English much less, but the English were close to home and resupply. Sizes and numbers of guns were tabulated or ordered and showed that the Spaniards had heavy, short-range 'ship-killer' guns, and the English mostly lighter, long-range guns. The English kept out of range of the heavy guns, and refused to grapple the Armada ships which had large contingents of soldiers aboard, intended to be used as landing forces. The English stood off, and peppered the Spaniards with long-range light shot, doing little harm to the ships of the Armada. Only on the fifth day, when the ships of the Armada had expended their shot, could the English close the range and begin to hurt the Spaniards. But then the English ran out of shot, after which the Armada was dispersed by fire ships and by weather. Lewis made no mention of the brittle nature of the Spanish shot, which caused it to fracture rather than to penetrate English hulls. This situation was uncovered by Sidney Wignall of the University of Wales, who described it to the author. The shot had been purchased on an expedited basis, and the foundries chilled the shot to be able to reuse the molds quickly. Chilled cast iron is even more brittle than normal cast iron.

F. W. Lanchester[6] in *Aircraft in Warfare,* devoted some time to evaluating the relative fighting values of armies and fleets of different sizes. He evolved his N-square law which says that, all else being equal, fighting strength is a function of (number of ships)^2 or (number of troops)^2. It is this rule that underlay the 'Nelson touch.' At the battle of the Saintes in 1782, Rodney cut the French line of battle, and his ships concentrated their fire on the French center and rear. In the nature of sailing vessels, the French van was unable to reverse its course and beat its way against the wind in time to be of assistance. The English were able to put two ships against each Frenchman. The fighting power of the English was thus two-squared, or four times the power of the French, so that the French were overwhelmed. Nelson recognized that this departure from the rigidly enforced rule that one was not to break one's line of battle, was a valid variation. Analysis of Nelson's memo and the tactical scheme announced to his captains before Trafalgar indicate that his intent was to exactly implement the N-square law. His 'touch' lay in the intuitive recognition of the superiority provided him by use of the N-square law.

An illustration of the need for careful compliance with the terms in which a problem is stated, is found in the phrase 'all else being equal.' In Caesar's *Commen-*

6. F. W. Lanchester, *Aircraft in Warfare,* London, 1916.

taries,[7] 'Naval Battle at Marseille,' we find what seems to be an inversion of the N-square law, caused by lack of compliance with the stated terms. The story tells of the battle between the outnumbered warships of Decimus Brutus, carrying Roman shock troops and centurions, and the ships of the Massilians. Brutus instructed his captains that each Roman ship should seek out two Massilians, grapple one on each side, and take them by boarding. The superior fighting qualities of the Roman infantrymen carried the day; they were more than equal in fighting power to their opponents.

Two books, one by MacGregor[8] and one by Chapelle,[9] have concerned themselves with the question of speed under sail. For many years there have been arguments about what constitutes the 'best' hull shape, the one that would be sea-kindly yet permit the greatest speed. Over the last century the art of naval architecture has advanced to the status of a science, and several numerical relationships have been recognized as being significant indicators of the potential speed of a ship's hull. These ratios have been calculated for the various ships described in the books, and Chapelle has tabulated them in the last section of his book, although he stated that these factors did not prove very decisive in analysis.

Block coefficients [(displacement)/(length x beam x draft)] and midsection coefficients [(midship transverse immersed area)/(beam x draft)] are indicators of load carrying capacity with no particular relation to speed. The prismatic coefficient [(displacement)/(midship transverse immersed area x length)] is the best indicator of speed potential, indicating the fineness of the ends of the hull. Chapelle remarked that the camber of the buttock-bow line at quarter-beam affects speed. It would seem that these factors are candidates for analysis by the method of multivariate analysis. Other factors, such as the angle of the bow of the quarter-beam line, could be included in the analysis. If they are not significant the equation will drop them by assigning them a zero multiplier, or else the multiplier might be so small as to be negligible. The multivariate analysis will emphasize the factors that exert the greatest influence on speed with their relative importance.

7. Julius Caesar, *War Commentaries*, 'The Civil Wars,' Book 1, Part 7.

8. David R. MacGregor, *Fast Sailing Ships, 1775-1875*, London, 1973.

9. Howard I. Chapelle, *The Search for Speed Under Sail*, New York, 1967.

Chapelle remarked that 'scientific' naval architecture results in unreliable designs. He also remarked that the sailing vessel designer, attempting to copy a successful model, was hampered by a lack of exactness in design data. But he failed to connect the two statements; the 'scientific' method, if it did indeed lack virtue in the making of new designs, is ideally suited for recording successful models, and permitting them to be reproduced.

Two works, one on the development of the Spanish sailing navy[10] and one by Brian Lavery,[11] *The Ship of the Line*, on the development of the English sailing navy both rely on graphic means to present information. The graphic means in each case are time series, designed to show trends. The Spanish work presents ratios of keel/beam and (depth of hold)/beam from 1587 to 1691, as a pair of lines on a graph. The graph is continued from 1700 to 1851 with the addition of a line for (length overall)/beam. In addition, the size of the sailing navy is shown from 1700 to 1860, with lines for total numbers of ships, ships-of-the-line in commission and laid up, and frigates in commission and laid up.

More complex graphics are shown in the work on English vessels. Again we find ratios used, in the description of ships built to the Establishment of 1719. The ratios are (cost of hull)/(broadside weight) and (weight of guns)/(tonnage). Eleven lines are plotted on the graph, the other lines representing cost of hull, broadside weight, weight of guns, tonnage, length, breadth, and depth of hold. Ratios present the result of calculations, and the other parameters were determined by normal historical research. Their graphic presentation may rightfully be considered to be cliometric in inspiration. The book contains five other sets of graphs illustrating various theses.

Finally, we have three cases in which the artifices of cliometrics were employed to recreate the hull lines and rigging of obscure sailing vessels.

The first case by Martinez-Hidalgo,[12] is the *Santa Maria* of Columbus. This latest and best analysis of the ship seems to be based on a methodology of logomachy and analogy, but a few proper cliometric procedures are also in evidence. Word counts were used on the much-

10. Gervasio de Artiñano y de Galdácano, *La Arquitectura Naval Española en Madera*, Madrid, 1920.

11. Brian Lavery, *The Ship of the Line*, Vol. 1 of 2, London, 1984.

12. José Maria Martinez-Hidalgo, *Columbus' Ships*, Barre, 1966.

edited versions of Columbus' logs and letters, to determine whether he consistently referred to *Santa Maria* as a nao or a caravel. They were said to be different hull forms, based on different ratios of beam/(keel length)/(overall length). The word count for the nao won by a large margin, with its 1:2:3 ratio instead of the caravel 1:2:3.3 that had been used by some earlier reconstructors. The ship was said to be of about 100 tons, but there was argument about how much was a ton. When the design of the reconstruction was completed, a weight analysis supported the use of the definition of 'ton' that had been decided upon by the analysts. The outboard profile used contemporary naos as an analogy; not a bad procedure, except that it was conducted by 'eyeballing,' without mensuration. The draft is known from the archives; this fixed one point on the profile. The width at the stern was taken to be one-half the beam, a ratio that was still in use in the Lorient shipyards of the French Compagnie des Indes in the period of the *Duc-de-Duras/Bonhomme Richard.* In researching the latter it was necessary to reconcile a half-dozen rules-of-thumb for anchor size. This was done successfully, and out of curiosity, the data so derived were applied to the anchor of the *Santa Maria.* It gave the same anchor weight as that derived by methods contemporary with *Maria,* a striking example of nautical conservatism; 300 years without change!

The second case represents the author's attempt[13] to recreate the sailing ship, *Malabar,* in which some of his great-grandparents emigrated from France. Some details of her appearance were culled from registers and from newspapers telling of her arrivals and departures from ports around the world, from 1856 to 1885. Grandmother was a young girl when her parents brought her to this country, but she remembered the work songs of the sailors, and sang them when working around her house. Her youngest daughter remembered the songs and sang them for me.[14] They were French 'long-haul' chanties, identifying the topsails as having been the old-fashioned full sail, not one of the newer patented smaller sails. Two half-models by the same builder were found in the Smithsonian and their lines were taken off. *Malabar* was the first of a class of six ships built by Thomas Lee in 1856 and 1857 in Quebec, all insured by Lloyds. The Lloyds' surveys furnish additional data on the ships. Finally, the lines of the two half-models and a print of another vessel by the same designer were subjected to engineering analysis to determine the design ratios favored by the designer. A psycho-history profile[15] was run on the designer to attempt to decide if he was of a disposition which, once having found a good design method, would not be inclined to experiment further. From the facts and design ratios thus determined it was possible to recreate the *Malabar.* Howard Chapelle, who was familiar with the general type, verified that the result was of the genre, although, of course, details of the design could not be certified.

One of the problems faced in the synthesis of the appearance of *Malabar* was whether or not she had a figurehead, and if yes, what did it look like? The first step was to ransack the Quebec city directories for the names of men listed as carvers, gilders, sculptors, and the very few figurehead carvers. Most of these men probably produced religious artifacts, or did architectural carving, cabinet work or coach work, plus the occasional ship's figurehead. I was looking for men who had worked for the shipyard of Thomas Lee, and I would then attempt to become familiar with their style, so as to duplicate it. I needed to sift from my list only those who were full- and part-time figurehead carvers. Names of U.S. shipcarvers were extracted from prior art[16] and the numbers of ship carpenters in their locale was determined from census data. The ratios of ship carpenters to men in other branches of shipbuilding were plotted on distribution curves, with like data from Quebec. The ratio of Quebec workers to those in the U.S. was found to be eighty percent in each specialty, which indicated either a surplus of ship carpenters in Quebec or a shortage in the U.S. The latter was indeed the case, and the shortage was filled by groups of itinerant ship carpenters who moved between Philadelphia and Maine shipyards as demand required. These phenomena were duplicated in the 1930s by peripatetic aeronautical engineers who traveled two circuits, one from Baltimore to Hartford, and one from Seattle to San

13. Norman N. Rubin, 'The Search for the *Malabar*,' *Nautical Research Journal,* New York Vol. 11, pp. 75-82, New York, 1960.

14. Norman N. Rubin, 'What Rig?,' *Model Engineer,* London, 22 February 1962.

15. Norman N. Rubin, *Shipwrights of the 19th Century: A Collective Psychological Profile,* Graduate thesis, American University, Washington, D.C., 1977.

16. M. V. Brewington, *Shipcarvers of North America,* Barre, 1962; Pauline A. Pinckney, *American Figureheads and Their Carvers,* New York, 1940.

Diego. The history of labor is full of such periodic migrations. Baltimore ship carpenters were more sedentary than their northern brothers because they had farms and fishing to fill their spare time, except during a war when they were apt to ship out on privateers, leaving shipyards shorthanded. In peacetime, Baltimore was the U.S. city most like Quebec in the size and makeup of its shipyard work forces. The U.S. ratios, when used as time series,[17] identified the reduction in numbers of block-makers due to the introduction of automatic machinery, and the increase in ironworkers during the nineteenth century. The number and identities of full- and part-time ship carvers was established by the ratios. The next step was to try to analyze their individual styles, using the choreographic notation developed by Rudolf Laban, and the Bertillon system developed by the French police before the advent of fingerprinting; and doing a statistical analysis of the results. Alas! there were insufficient data. Review of *Malabar*'s sister ships and other ships of the same yard, indicated the possibility that a billet-head had been used; *Malabar* was therefore given a billet-head.

It must be noted that the notation of Rudolf Laban and the list of body measurements originated by Alphonse Bertillon lend themselves to the use of punched cards and are, in fact, codes; which leads us to speculate on the utility of cryptanalytic methods for cliometrics. Review of the subject discloses that cryptography consists of ciphers, in which a letter is substituted for aletter of the clear message,[18] and of codes in which letters or symbols stand for whole groups of words, requiring a code book to read. Cryptanalysts use frequency tables of letters, groups of letters, and words to break ciphers and codes. We are of course familiar with the use of frequency tables in cliometrics, so the cryptanalytic usage does not provide us with a new analytic tool.

The use of mensuration in judging the provenance of works of art dates to about 1900 when Giovanni Morelli[19] reported the use of his new methods to expose scores of mislabeled Renaissance paintings in Italian and German galleries. He was basically a taxonomist, not going beyond the classification phase of operations research. Bernhard Berenson[20] went a step beyond Morelli to include, along with minor items of draftsmanship, the arrangement of components of the painting, and the use of color. Both Morelli and Berenson (and later, Paisley) took account of the drafting of the shapes of anatomical details such as ears, eyes, fingers and hands; and the fold and drape of garments. William Paisley[21] in 1964 applied the full panoply of operations research to the encoding of music in order to identify the writer of the music. He decided that the interpretation of encoded data on music, literature and painting was best handled by frequency distributions. The method used by Morelli to encode paintings included consideration of minor items; ears, hands, etc. Art historians were concerned with forgeries, hence they concentrated on minor aspects of paintings that would tend to be overlooked by a forger. The forgery problem did not exist with ships' figureheads, so a gestalt approach as outlined above, is possible. Both the Laban and Bertillon encodings take cognizance of major characteristics in addition to the minor characteristics outlined by Morelli. It is interesting to note that Morelli and his followers, while embracing the quantitative approach, all refused to retreat from the need to augment that approach with a qualitative approach. Morelli emphasized the need to 'associate in spirit' with the painter. Berenson wanted to define the motive and ideas of the painter, and to find the 'intimate, mystic beauty' of a sculpture, while Paisley remarked that 'style embraces ineffable qualities.' Thus, the mystique of the connoisseur has retreated only one grudging step when faced by mathematics. In fact, statistical studies can provide only the armature or skeleton of a figurehead sculpture, with some clues as to unusual features and drapery. The skeleton would have to be fleshed out from reference to known works of the ship carver, and/or by artistic intuition.

The third ship for which details were derived by cliometric means was done by the author.[22] It was the *Bonhomme Richard* ex-*Duc de Duras*. *Duras* was considerably rebuilt to become *Richard*, and it was nec-

17. Norman N. Rubin, 'Quebec Figureheads and Shipcarvers,' *Nautical Research Journal*, Vol. 18, pp. 75-90, Maryland, 1971.

18. Fletcher Pratt, *Secret and Urgent; The Story of Codes and Ciphers*, New York, 1939.

19. Giovanni Morelli, *Italian Painters: Critical Studies of Their Works*, London, 1900.

20. Bernhard Berenson, *The Study and Criticism of Italian Art*, London, 1920.

21. William J. Paisley, 'Identifying the Unknown Communicator in Painting, Literature and Music: The Significance of Minor Encoding Habits,' *The Journal of Communication*, University of Minnesota, Vol. XIV, pp. 219-237, December 1964.

22. Norman N. Rubin, 'The "Average" Ship,' *Nautical Research Journal*, Vol. 30, pp. 140-142, Maryland, 1984.

essary to arrive first at *Duras,* then modify her into *Richard.* There is considerable archival data on both vessels. *Duras* was a French East Indiaman built at Lorient in 1765. The first thought was to find a sister ship and copy her, but the nearest kin was a flûte, a different hull shape from a ship. For the era of *Duras,* twenty-three sets of plans of French East Indiamen were obtained. About half were from various archives, and the others were developed by the author from models in the U.S., U.K. and France. In the period of ten years before, and ten years after *Duras,* Lorient built sixty-three ship-rigged vessels, plus many smaller ones. We have plans for twenty-seven or forty-three percent. (Several ships were often built to one set of plans.) Thus, our sample is a large portion of its universe, giving us a low probability of sampling error. Pertinent design ratios were derived from the work of du Monceau[23] and were evaluated for all twenty-three plans; about 100 ratios for the hull, plus another 100 or so, if the rigging was included. Not all were from du Monceau; some were from other contemporary sources. For each ratio a frequency distribution was plotted and the mode determined. The known items of archival data were used as checkpoints. Each checkpoint was quantified statistically and the results compared to the archival data. The average discrepancy was about one to one-third percent, which was considered to be acceptable. Regression was used to obtain some of the answers, and some ratios gave frequency tables so compact that no plotting was needed.

It must be remarked that the differences found in drawings and models of vessels that could reasonably be expected to be similar, were not frivolous. The wooden ship was made by hand, with many men involved in its fashioning. The literature is replete with accounts of the differences found in 'sister' ships made sequentially in the same yard by the same men, much less the differences in 'sisters' made to the same plans in different geographic locations. The *Malabar* was the first of her class and served as the 'dog-ship' wherein were tested the molds to which parts were fabricated for her sister ships. Despite this standardization, the measured tonnages of the ships varied from 814 to 852. Chapelle has mentioned the difficulty experienced by draftsmen in duplicating lines from a given half-model, and the differences among the register dimensions of Chesapeake Bay schooners built from the same half model have been noted in the Museum of the Maryland Historical Society in Baltimore. Thus the procedure of 'averaging' the proportions of French East Indiamen built at Lorient, contemporary with the *Duc-de-Duras/Bonhomme-Richard,* may be considered to be a way to approach the design ratios used by the shipwrights of the Compagnie des Indes. The idea of looking for, and hopefully recovering all or some of the *Bonhomme Richard* was originated by Sidney Wignall of the University of Wales in the 1960s. In 1974, he approached the Smithsonian Institution for information leading to the development of sonar and magnetic signatures of the wreck. He was referred to the author, and as a result of the cliometric analysis of the *Duc-de-Duras/Bonhomme-Richard,* it was possible to supply the required signatures. Searches of the seabed off Flamborough Head were conducted in 1976 by Decca and Wignall, in 1978 by Wignall, and in 1979 by Clive Cussler and the National Underwater Marine Agency, who returned in 1984. To date, the searches have been unsuccessful.

The similarity of the processes used in cliometrics, to those used in operations research, has been remarked. Operations research saw the light of day in World War I.[24] One of its early proponents was F. W. Lanchester whose N-square law we have discussed. During that period Thomas Edison studied anti-submarine warfare, and the growing discipline of operations research has been a mainstay to naval operations since then. In World War II it was used to optimize patterns for the most effective method of attack on submarines. 'Pursuit curves' for fighter aircraft and submarines were studied, to optimize them. What was done in the two wars is now history, but study of that history cannot rightfully be subsumed under the rubric of cliometrics. However, many of the methods of analysis developed by the practitioners of operations research have application in cliometrics.

The tools used in operations research are mathematics and stochastic processes. The mathematical techniques are called linear programming. If the problems cannot be reduced to linear terms, non-linear programming may be attempted. Network or shortest-path models have been used as have variants such as optimization. We used an optimization approach in analyzing

23. Louis Henri Duhamel du Monceau, *Elemens de l'Architecture Navale,* Paris, 1752.

24. McGraw-Hill, *Encyclopedia of Science and Technology.* 5th ed., 15 vols., 1982.

the characteristics of eighteenth-century French anchors to reconcile several rules-of-thumb to arrive at a consensus for deriving the weights and dimensions of anchors for *Duras*. The same method was used on the rudder shape. A graphic non-linear process was used to determine the bow shape of *Duras*.

In a stochastic process, one or more of the variables take on values in accordance with a probability distribution. The concept of a stochastic process includes all of probability theory, which we have seen applied to wave theory, whale activity, and the analyses of *Malabar* and *Duras*.

A textbook on econometrics[25] has been reviewed, and other than the esoteric jargon peculiar to the discipline, was found to use the same mathematical and stochastic procedures that are displayed in texts on the social sciences and on operations analysis.

For use in problems such as those posed by Chapelle and MacGregor and in *Richard* and *Malabar* and *Santa Maria*, knowledge of hull forms and their characteristics is required. Determination of hull characteristics depends upon knowledge of the areas of the submerged lateral planes from end to end of the hull. This was formerly obtained from a hull plan, using manual analog computers such as planimeters and linear scales or measures. Modern digital computers using software developed by the Massachusetts Institute of Technology and the David Taylor Model Basin can provide hull characteristics much more rapidly. The drawback is that one must insert into the digital program the major hull dimensions, plus the various hull coefficients, and these latter must be developed by analog computers from a set of hull lines. The digital computer will then assess the sea-keeping qualities of the hull, and its power vs. speed curve, and even permit the hull shape to be rotated for examination, and modified until it 'looks right,' just the way an old-time shipwright whittled on the shape of a half-model until it 'looked right.' The end result, as between the old methods and the new, is a saving in time and man-hours. For our purpose, the digital computer is not a worthwhile instrument, because its forte is the performance of a function for which we have no need. The analog methods suffice. This is supported by the author of the segment on operations research in the Encyclopedia of Science and Technology: 'In modeling the system, one usually relies on mathematics, although graphical and analog models are also useful.'

The writers on the work on operations research in the Encyclopedia cite as a major limitation to the use of operations research the natural resistance to change because of fear of the unknown. This sentiment echoes that of the econometrician, R. W. Fogel, quoted earlier.

Arguments about the applicability of the scientific method to the analysis of history, specifically the mathematical and statistical approach, are of long standing.[26] The differences center about the questions of whether history is patterned or patternless, and whether it can be analyzed in its parts, or must be approached holistically. The examples that we have discussed, concern only the history of nautical science and technology; this branch of history is definitely patterned. It is a step-by-step, stone-on-stone process, despite deviations and aberrations that fell by the way. As to the practicability of analysis in parts, it was done successfully in the examples. Some historians[27] argue for the application of operations analysis to broad historical problems, analyzing the problems in parts. In all probability present-day mathematics, even with its potent electronic handmaidens, is not up to the task of encompassing all of history. However, the analysis of historical problems in parts is, as we have demonstrated, a viable procedure.

A group of leading sociologists are in concordance[28] that their discipline benefits from a multiplicity of styles of research: empirical (or humanistic) and quantitative. In particular, the use of complex multivariate analysis is noted to have been useful. A third style of research, by ideologists such as Marxists and feminists, is basically agitation and propaganda. This style is also found in political science, anthropology, and other disciplines, but happily not in nautical research. Despite this lack, our discipline also can benefit from the concept of multiplicity of styles of research.

Certainly,[29] 'Statistical inquiry has assumed supreme

25. Gerhard Tintner, *Econometrics*, New York, 1952.

26. Robert Bruce Lindsay, *The Role of Science in Civilization*, New York, 1963.

27. William Todd, *History as Applied Science*, Detroit, 1972.

28. Anon., 'Sociologists Examine an Issue,' *New York Times*, Sunday, April 28, 1985, Sect. IV, p. E7.

29. A. E. Heath, ed., *Scientific Thought in the Twentieth Century*, New York, 1953.

importance in all fields,' and perhaps this slight paper will help to familiarize potential users of the cliometric approach with the benefits to be derived.

Norman Rubin was born on Long Island in 1914. He graduated NYU in 1935 with a degree of BS in Aero Engineering, and worked as a flight-test engineer until the Air Force called him to active duty in WW2. After the war he came to NavAer and then to CIA and to the Coast Guard, and back to NavAer until retirement in 1972. His patents (20 of them) and articles (155 to date) spanned 1936 to date. Half the articles were of technical nature, and half pertained to his hobby of maritime history. After retirement he worked as a consultant, applying operations research analysis to various military and industrial problems. He spent 1976 to 1978 in graduate school in the Department of History of the American University. Since then he has been applying cliometrics to maritime history.

Jack London in the Tradition of American Sea Fiction

BERT BENDER

> And at last my dream would be realized: I would sleep upon the water. And next morning I would wake upon the water; and thereafter all my days and nights would be on the water.[1]
> —Jack London

LITERARY historians have barely begun to weigh the sea's profound influence on American literature. Of course we have our great sea book in *Moby-Dick*, but even this masterpiece was tragically neglected for nearly seventy-five years, until the Melville revival gradually led to the consensus that Melville is our greatest novelist. Still, it was not until 1961, with the publication of Thomas Philbrick's *James Fenimore Cooper and the Development of American Sea Fiction*, that literary historians seemed to grasp the idea that *Moby-Dick* does not mark 'the first appearance of the sea in American literature."[2] Pointing out that Cooper, in fact, was the 'originator of the sea novel,' Philbrick explained how Cooper's twelve sea novels and those of several of his contemporaries constituted a tradition of American sea fiction that in some ways contributed to the creation of *Moby-Dick*. More significantly, he demonstrated that 'during the first half of the nineteenth century, the sea occupied much the same place in the imaginations of many Americans that the continental frontier was to fill after 1850' (p. 1). In the light of Philbrick's study—which was not at all intended to diminish our respect for *Moby-Dick*—it became clear that our greatest American novel is, as a sea novel, even more American than many had imagined.

Noting the general decline of American maritime activity after 1850, particularly the virtual collapse of the whaling industry, Philbrick concluded his essay on Cooper and the development of American sea fiction by remarking that 'Melville's work, like the great clipper ships which were its contemporaries, was something of a historical anomaly, the last magnificent flowering of a plant that was dying at the roots' (p. 202). And here—for nearly twenty-five years now, according to our literary histories—the story ends. Actually, there is much more to tell. For, far from 'dying at the roots,' the tradition of sea fiction that began in America with Cooper's *The Pilot* (1824) has continued to develop quite impressively throughout the twentieth century. And its renewed vitality in the twentieth century is due largely to the powerful influence of Melville's work itself. Just as the sea had given rise to significant literary expression in American fiction before Melville (notably in Cooper and Poe); after Melville, it has continued to do so in the fiction of Stephen Crane, Jack London, Ernest Hemingway, and, most recently, Peter Matthiessen.[3] My purpose in the following pages is to extend Thomas Philbrick's earlier work. That is, by discussing some representative sea pieces by Jack London, I hope to show his true place in the tradition, as Philbrick did earlier regarding Cooper: Jack London was the first full-fledged heir to the tradition of American sea fiction after its 'golden-age' of 1840-1851.[4]

During the last two decades, Jack London has

1. *John Barleycorn*, of *The Bodley Head Jack London*, ed. Arthur Calder-Marshall (London: The Bodley Head, 1964), Vol. II, p. 65.

2. *James Fenimore Cooper and the Development of American Sea Fiction* (Cambridge, Mass.: Harvard Univ. Press, 1961), p. vii.

3. American literature of the sea is not, of course, limited to the genre of fiction. In a figurative sense, at least, we might say that American literature in English, in general, was born at sea in the logs, journals, and sermons of Captain John Smith, William Bradford, and John Winthrop. An excellent discussion of the sea in colonial American literature is available in Donald P. Wharton's Introduction to *In the Trough of the Sea: Selected Sea-Deliverance Narratives, 1610-1766* (Westport, Conn.: Greenwood Press, 1979). After the colonial period, the sea shaped an enormous volume of American poetry (e.g., in Whitman, T. S. Eliot, Charles Olson) and drama (e.g., in Eugene O'Neill). And among the very greatest pieces of American sea literature are the non-fiction masterpieces of Dana, Joshua Slocum, and John Steinbeck. For a recent brief account of the tradition of American sea fiction after 1851, see Bert Bender, '*Far Tortuga* and American Sea Fiction since *Moby-Dick*,' *American Literature*, LVI (May 1984), 227-48.

4. Jeane-Marie Santraud refers to the 1840s as the 'golden age' of American sea fiction in her *La Mer et le Roman Américain dans le Première Moitié du Dix-Neuvième Siècle* (Paris: Didier, 1972), p. 77.

Dirigo, the ship aboard which London and Charmian rounded Cape Horn in their voyage from Baltimore to Seattle in 1912-1913, the experience on which he based *The Mutiny of the Elsinore*. (Courtesy of The Huntington Library, San Marino, California, Album 74, No. 09619.)

emerged as a much more significant American writer than critics were prepared to admit during the half-century following his death. But it is a strange and unfortunate oversight that the author of *The Sea-Wolf* has never been fully recognized as a major writer in the tradition of American sea fiction.[5] The most obvious reason for this oversight is the mistaken assumption, as I have already suggested, that the tradition virtually ended with the publication of *Moby-Dick*. Also, like Cooper—who had come to be identified with but one part of his work (the 'Leatherstocking' series), London has come to be known mainly for his Alaskan stories, particularly *The Call of the Wild*. Further, it would seem that London's protean productivity has confused his critics, leaving his own figure as an important sea writer enshrouded, like the sealing schooner *Ghost* in one of the great fogbanks of the Bering Sea. In his meteoric sixteen-year career, this most energetic writer of 'The Strenuous Age' produced over fifty books, Earle Labor reminds us, 'with an astonishing range of subjects: agronomy, architecture, astral projection, boating, ecology, gold-hunting, hoboing, loving, penal reform, prize-fighting, Socialism, warfare.'[6] Labor presents this impressive list in alphabetical order, but it should be rearranged and the subject 'boating' replaced at the head of the list with THE SEA. For while London's literal parentage remains in question, his literary parentage does not. He was born of the great tra-

5. Important scholarly works on London since 1966 include Franklin Walker, *Jack London and the Klondike: The Genesis of an American Writer* (San Marino, Calif.: Huntington Library, 1966); Earle Labor, *Jack London* (New York: Twayne, 1974); James I. McClintock, *White Logic: Jack London's Short Stories* (Grand Rapids, Mich.: Wolf House Books, 1975); Andrew Sinclair, *Jack: A Biography of Jack London* (New York: Harper & Row, 1977); Joan D. Hedrick, *Solitary Comrade: Jack London and His Work* (Chapel Hill: University of North Carolina Press, 1982); Charles N. Watson, Jr., *The Novels of Jack London: A Reappraisal* (Madison: The University of Wisconsin Press, 1983).

6. Labor, p. viii.

dition of American sea fiction, and he remained until his death a more potent force in perpetuating it than we have yet recognized. From his seventeenth year, when he published his first story, 'Typhoon Off the Coast of Japan,' until he wrote his last story, 'The Water Baby,' he turned repeatedly to the sea in his efforts to grasp the essential reality of our existence.

Like the other great figures in our tradition of sea literature—Freneau, Cooper, Dana, Melville, Stephen Crane, Joshua Slocum, O'Neill, Hemingway, and Peter Matthiessen—London wrote from direct experience of the sea and was inspired by other writers in the tradition who had sailed before him. But excepting only Freneau and Slocum, none of these writers can claim to have drawn on so broad and varied a basis of first-hand sea experience. London was as a boy an estimable small boat sailor in San Francisco Bay, where he won local fame as 'prince of the oyster pirates' and served on the California Fish Patrol; at seventeen he sailed before the mast as an able seaman on the sealing schooner *Sophia Sutherland,* and at twenty-one steamed and, on the last leg, sailed in an Indian dugout canoe from San Francisco to Dyea, Alaska.[7] Following a 2,000-mile journey in a hand-hewn boat down the Yukon River from Dawson to St. Michael, he worked his way back to British Columbia passing coal on an ocean steamer. Later he would sail as a passenger on innumerable coastal and transoceanic voyages by steamer and would continue until the end of his life to sail his own small boats in the waters of San Francisco Bay. Finally, in addition to the famous eighteen-month cruise that he logged in *The Cruise of the Snark,* he fulfilled a life-long dream in 1912 by sailing from Baltimore to Seattle on a five-month voyage around Cape Horn. He was our last major writer to make the passage and tell the story before steam power and the Panama Canal left buried at sea one of our literature's earliest and most compelling tales of mythic proportions.

In addition to this impressive first-hand sea experience, London drew heavily on his experience with sea literature. In the first place he read Melville. In fact, as Charles N. Watson, Jr., has recently emphasized, London should be credited with having read *Moby-Dick* 'more creatively than any novelist' before him, and 'at

London aboard his *Roamer* in 1910. (Courtesy of The Huntington Library, San Marino, California, Album 28, No. 02188.)

a time when few readers remembered Melville at all."[8] But he also read widely and deeply in Cooper, Dana, Marryat, Swinburne, Masefield, Stevenson, Kipling, and his contemporaries, Crane, Norris, Slocum, Morgan Robertson, and Conrad. Of these, he was most inspired and influenced by Melville, Dana, Slocum, and Conrad. But London's sea fiction bears the unique stamp of his own genius, and his notable work in the field includes not only his masterpiece, *The Sea-Wolf,* but the neglected novel, *The Mutiny of the Elsinore* (1912), and such memorable stories as 'The Seed of McCoy,' 'Make Westing,' 'The Heathen,' 'The "Francis Spaight," ' 'The Sea-Farmer,' 'Samuel,' and 'The Water Baby.' In addition to a number of other good but less notable sea stories like 'Under the Deck Awnings' and 'The Pearls of Parlay,' he produced a fine boys' book in *The Cruise of the Dazzler* and the collections of boys' stories of his own boyhood contained in *Tales of the Fish Patrol* and *Dutch Courage and Other Stories.* Finally, he produced several stories and books that are shaped significantly by the sea, even though they cannot be described as pure sea fiction; the most important of these are *The Cruise of the Snark* and *Martin Eden,* but there are as well *John Barleycorn,* 'An Odyssey of the North,' *Jerry of the Islands,* and *Michael, Brother of Jerry.*[9]

7. Franklin Walker theorizes that London made the last leg of his journey from San Francisco to Dyea, Alaska in an Indian canoe: *Jack London and the Klondike,* p. 52.

8. Watson, pp. 61, ix.

9. For complete bibliographical information see Dale L. Walker and

Clearly, Jack London had more to say about the sea than can be fully represented in a mere essay such as this, but perhaps a brief examination of four of his sea pieces—*The Sea-Wolf, The Mutiny of the Elsinore, Michael, Brother of Jerry,* and 'The Water Baby'—will reveal what he saw in the sea that drew him so constantly to it and what he contributed to the tradition of American sea fiction.

Like so many of our most memorable novels, *The Sea-Wolf* is great but flawed. Its estimable energies, like those of *Huckleberry Finn,* for example, are sadly dissipated in the closing chapters. One of London's disciples, Jan de Hartog, puts it memorably: remarking that 'the best reading matter at sea is Jack London,' he explains the circumstances under which he first read *The Sea-Wolf*—'in sharp competition with the cook's digestion; owing to that fact that he tore out about fifty pages per book, I rarely managed to catch up with their endings. I was thus spared Jack London's women, who come in at the end of his books and spoil them.'[10] But most readers can agree with Ambrose Bierce's remark that the novel's 'great thing—and it is among the greatest of things—is that tremendous creation, Wolf Larsen. . . . The hewing out and setting up of such a figure is enough for a man to do in a life-time.'[11]

Wolf Larsen is certainly London's greatest creation of the sea, and the purpose of my limited remarks here about *The Sea-Wolf* is to emphasize Wolf Larsen's uniqueness among sea captains as a creature of the water. Despite his many resemblances to Captain Ahab and the influence of *Moby-Dick* on *The Sea-Wolf,* in general, Larsen is certainly more than a mere copy of Ahab or even 'the Captain Ahab of literary Naturalism.'[12] With Ahab and a more recent American sea captain, Captain Raib in *Far Tortuga,* Wolf Larsen stands on his own legs (as he would have put it) as one of America's greatest characters in literature. He is, admittedly, a descendant of Ahab, but Jack London is his father, and he was shaped by London's own times and preoccupations as surely as Ahab was shaped by Melville's. Larsen's unique watery nature is a reflection of London's effort to represent concretely in his character the essential biological reality of all life as we had come to understand it forty-three years after the appearance of *The Origin of Species.* Darwin had first appeared in the tradition of American sea fiction in the 'Extracts' of *Moby-Dick,* where (eight years before *The Origin of Species)* Melville quotes briefly from 'Darwin's Voyage of a Naturalist'; but Darwin's profound influence on the tradition begins in *The Sea-Wolf.* Henceforward in the tradition, the sea as the source of all life on earth would often influence the portraits of seamen by revealing—as in Wolf Larsen—the primordial sea-animalness of man. Such would be the case in Hemingway's portrait of Harry Morgan in *To Have and Have Not* (1937), whose prodigious lovemaking is compared to that of a loggerhead turtle; or, more subtly, in Peter Matthiessen's portrayal of his fishermen in *Far Tortuga.*[13] While Melville had emphasized the bloody sharkishness of life, he could not see, as London could in 1904, how the salt sea reflects the harsh reality of the biological time that has shaped us rather than an ambiguous promise of eternity.[14] In *Moby-Dick,* Melville's own wonderful sensitivity to the water finds expression not through Ahab—who is maddened by the ambiguity of life, but rather through Ishmael's sense of the 'sweet mystery about this sea, whose gently awful stirrings seem to speak of some hidden soul beneath' ('The Pacific'). And whereas Ishmael is *drawn* to the water, where he sees reflected the 'image of the ungraspable phantom of life' ('Loomings'), Wolf Larsen is *of* the sea.

Larsen's entry into our literature is significant. We see him first as he glances 'out over the water.'[15] There

James G. Sisson, III, *The Fiction of Jack London: A Chronological Bibliography* (El Paso: Texas Western Press, 1972); and Hensley C. Woodbridge and others, *Jack London: A Bibliography* (Georgetown, Calif.: Talisman Press, 1966).

10. *The Call of the Sea* (New York: Atheneum, 1966), pp. 351-52.

11. Quoted in Philip Foner, ed., *Jack London: American Rebel* (New York: Citadel Press, 1947), pp. 61-62.

12. Labor, p. 95. For a discussion of the influence of Melville, Shakespeare, and Milton on *The Sea-Wolf,* see Watson, pp. 53-78.

13. Outside the tradition of sea fiction, of course, London was not alone among American naturalists in projecting the Darwinian reality through such images as those of the squid or octopus. For Hemingway's description of Harry Morgan's love-making see *To Have and Have Not* (New York: Scribner's, 1937), pp. 112-17.

14. Similarly, no sea writer in the 1970s or '80s could see what Hemingway saw in 1935 in his rhapsody of the garbage scows off Havana: 'The stream . . . takes five loads . . . a day . . . and in ten miles along the coast it is as clear and blue and unimpressed as it was ever before the tug hauled out the scow; and the palm fronds of our victories, the worn light bulbs of our discoveries and the empty condoms of our great loves float with no significance against the one single, lasting thing—the stream.' *Green Hills of Africa* (New York: Scribner's, 1935), pp. 148-50.

15. *The Sea-Wolf,* ed. Matthew J. Bruccoli (Boston: Houghton Mifflin, Riverside Edition, 1964), p. 9. Further references to this work appear in the text.

is 'life and death' in his 'gaze,' and 'deep thought'; and when his 'gaze [strikes] the water,' he finds there the shipwrecked Humphrey Van Weyden, afloat 'in the midst of a gray primordial vastness.'[16] Thus Wolf literally saves Humphrey from drowning in San Francisco Bay, but London's figurative meaning is that Wolf will save Humphrey by causing him to go through the process of evolution aboard the 'miniature floating world' of the sealing schooner *Ghost,* the real process of life that Van Weyden—a 'romantic,' sophisticated 'landsman,' has somehow escaped (p. 25). As Humphrey Van Weyden begins to regain consciousness aboard *Ghost,* he will awaken to what is for him a new reality. In his first dreamy sense of 'swinging in a mighty rhythm through orbit vastness,' of being 'lapped in the rippling of placid centuries,' we can see London's first attempts to breathe new life into him (p. 10). Moments before the collision, Humphrey had imagined that he rode 'through the gray shadow of infinite mystery' (i.e., the fog) on a 'steed of wood and steel' like a man, a 'mere mote of light and sparkle' (p. 5). Now he will awaken to the new twentieth century, when men would be depicted as Stephen Crane had depicted them in 'The Blue Hotel,' for example—as so many 'lice' clinging to a 'whirling, fire-smote, ice-locked, disease-stricken, space-lost bulb.' (Crane's sense of the species' origin was not as acutely biological as London's, nor is it reflected at all in 'The Open Boat'; but he saw that the 'Black riders came from the sea.') And because London's sense of the new reality—the flux, the biological strife and instability—was always most intensely clear to him at sea, Humphrey Van Weyden opens his eyes to see that 'his mighty rhythm was the lift and forward plunge of a ship on the sea' (p. 10).

Humphrey has embarked on a traditional sea journey to knowledge, and his course is charted in the 'life and death' he first sees in Wolf's gaze. But before London allows Humphrey to look more deeply into Wolf's eyes, he forces him to witness a reenactment in flesh and blood of the eternal drama, *life* in Wolf's flesh confronting *death* in the 'diabolical grin' of the dead mate. Humphrey's first impression of Wolf's 'strength' is that it is 'the essence of life . . . the potency of motion, the elemental stuff . . . of life,' that 'which lingers in a shapeless lump of turtle meat and recoils and quivers from the prod of a finger' (p. 14). But despite Wolf's Mesozoic vitality and even the 'thunderclap' and 'electric sparks' in his oaths, the dead mate's grin of 'cynical mockery and defiance' makes *him* 'master of the situation' (pp. 15-16). The great sea captain is a mere survivor, left to create order in his 'miniature floating world' and to instruct his new cabin boy. And Humphrey certainly has much to learn from Wolf, something that he first senses is beyond 'sounding,' something asleep 'in the deeps of [Wolf's] being' and that is reflected in his eyes: 'a baffling protean gray which is never twice the same; . . . gray, dark and light, and greenish-gray, and sometimes of the clear azure of the deep sea' (pp. 18-19). When Humphrey does first look 'steadily' into Wolf's 'cruel gray eyes,' he sees no sign of the 'light and warmth of a human soul,' only the 'cold' and 'gray' of 'the sea itself' (p. 24). Thus it is that London ends his introduction to this allegorical voyage, before *Ghost* enters into the 'lonely Pacific expanse,' by arranging for Wolf to express the sum of his wisdom and sea experience—all that was contained in his first gaze of 'life and death' and all that he can ever teach Humphrey about reality. Presiding over the sacred ceremonial, while 'the wind shriek[s] a wild song through the rigging' and the men sway 'in unison to the heave and lunge of the deck,' Wolf says it all: 'And the body shall be cast into the sea.'[17]

By the end of chapter 12, a 'carnival of brutality,' Humphrey has begun to learn about the 'realities of life'; he sees himself now as 'Hump, cabin boy on the schooner *Ghost,*' and affirms 'Wolf Larsen [is] my Captain' (pp. 79, 86). Then, by the beginning of chapter 16, having evolved far enough for Wolf to congratulate him for having discovered his own legs, Hump is *Ghost*'s mate. The crucial steps in his development were that he had descended into 'the inferno of passion' and violence in the forecastle, and that he had been 'deluged' by Wolf's arguments that 'might is right.' Also, he had heard Wolf speak of his own death, which, inevitably, would be 'at sea': then he would 'cease crawling' and 'be acrawl with the corruption of the sea,' the 'strength and movement of [his] muscles' then only 'strength and movement in fin and scale and the guts

16. Cf. Ishmael's meditation on 'water-gazers' in 'Loomings.'

17. *The Sea-Wolf,* pp. 25-26. This sea burial is based on London's experience aboard the *Sophia Sutherland,* when the 'bricklayer' was buried at sea. The extent to which London was affected by the scene is clear from his having recreated it also in his story 'That Dead Men Rise Up Never,' and from the emphasis he gives it in his notes for the projected novel, 'The Mercy of the Sea' (TS notes numbered 941 in the London Collection, Henry E. Huntington Library, San Marino, California).

of fishes' (pp. 94, 77, 54). And Humphrey had viewed and touched the 'terrible beauty' of Wolf's naked body, the supreme 'mechanism of the primitive fighting beast.' His physical evolution now complete, Hump is aware that he will never be 'the same man,' and he is grateful for Wolf's having opened up for him the 'world of the real' (p. 109). Soon, of course, Maud enters the novel, but before London subjects Hump (and his readers) to her disappointing spiritual influence (she is the permanent 'etherealized essence of life . . . in the changing order of the universe' (p. 190), he celebrates Hump's new manhood in a ceremonial storm scene that illuminates Wolf Larsen's watery powers.

Wolf's stormy nature is repeatedly emphasized in the character of Louis's prophecies: 'look out for squalls,' he warns Hump (p. 74). So it is appropriate that in the great storm scene of chapter 17 we see Wolf as he is most fully himself; here also we see London most fully himself as a sea writer. At once 'joyous' and 'ferocious,' Wolf is 'thrilled and upborne with knowledge that one of the great moments of living, when the tide of life surges up in flood, was upon him' (p. 111). In the 'purplish light' of the coming storm, 'Wolf Larsen's face glowed and glowed' as if 'encircled by a halo' (p. 112). The ensuing storm scene is one of the most memorable in literature, but my point about it is that it is more than an exciting true picture of a storm, drawn from the author's own sea experience: it is a celebration of the ultimate experience that London could imagine in life. Knowing that the sardonic grin of death is the final master of man, London celebrates not resurrection, but survival—*Ghost*'s repeated actual 'miracle' of being 'buried beneath the sea' and then righting herself and breaking, 'like a whale's back, through the ocean surface.'[18] From his lofty perch in the crosstrees, Hump sees *Ghost* 'against the foaming sea as she [tears] along instinct with life' (p. 113). When a huge wave overtops the schooner, he gazes 'sheer up into it . . . a rushing green backed by a milky smother of foam' (p. 115). Then 'under water,' he fears the 'terrible thing . . . being swept in the trough of the sea'; but he is 'pounded,' 'dashed,' 'turned over and over,' and he breathes 'the stinging salt water into [his] lungs' before finally envisioning Wolf 'standing at the wheel in the midst of the wild welter' (p. 115). By taking the salt water into his lungs, by clinging to the image of Wolf, and by struggling to fulfill his order—'get the jib backed over to windward'—Hump survives this deluge (p. 115). And when *Ghost* is repeatedly submerged, he

> felt strangely alone with God, alone with him and watching the chaos of his wrath. And then the wheel would reappear, and Wolf Larsen's broad shoulders, his hands gripping the spokes and holding the schooner to the course of his will, himself an earth god, dominating the storm, flinging its descending waters from him and riding it to his own ends. And oh, the marvel of it! That tiny men should live and breathe and work, and drive so frail a contrivance of wood and cloth through so tremendous an elemental strife! (Pp: 117-18)

It is a mistake to see such storm scenes and feats of seamanship in London's fiction as mere romantic adventure, the boy's way to manhood, even though we know how thrilled the seventeen-year-old Jack had been in proving himself an 'able-bodied seaman' by steering the sealer *Sophia Sutherland* through a night of storm. In fact, such scenes and the logic underlying them provide a clear view of London's deepest understanding of the sea and a clear measure of the distance between himself and Melville as sea writers of different times. The great storm scenes comprise a very small part of *Moby-Dick* and serve (as in 'The Candles') to highlight the spiritual struggle between Ahab's doubt and Ishmael's faith, a struggle that is subsumed in Ishmael's meditative wonder, his sense of the sea's 'sweet mystery' ('The Pacific'). Ahab's death and Ishmael's survival constitute a spiritual affirmation that London could not accept. Despite his acknowledged love for Melville and the apparent influence of *Moby-Dick* on *The Sea-Wolf,* London's only explicit reference to *Moby-Dick* registers his objection to its 'imaginative orgies.'[19]

18. Pp. 114, 117. See also London's description of Wolf's wateriness and his power to survive when he climbs back aboard the *Ghost* after having been knocked overboard in the attempted mutiny: 'A sinewy hand, dripping with water, was clutching the rail. A second hand took form in the darkness beside it . . . what visitant from the gloom of the deep was I to behold? . . . I saw a head, the hair wet and straight, shape itself, and then the unmistakable eyes and face of Wolf Larsen. . . . The seawater was streaming from him. It made little audible gurgles that distracted me' (p. 93).

19. In his essay on *Two Years Before the Mast,* 'A Classic of the Sea,' *The Human Drift* (New York: MacMillan, 1917), p. 102. London's remarks on Dana in this essay provide a clear view of his own understanding of the sea. Whereas D. H. Lawrence would credit Dana for 'profound mystic vision,' London praises Dana for having provided 'a document for the future centuries'—'the photograph detail of life before the mast and hide-droghing on the coast of California, . . . of the unvarnished, simple psychology and ethics of the forecastle hands who droghed the hides, stood at the wheel, made and took in sail, tarred down the rigging, holystoned the decks, turned in all-standing, grumbled

London as harpooner aboard *Snark* (1907-1908), in a posture idealized in the tradition of American sea fiction from Cooper's *The Pilot* (1824) to Peter Mathiessen's *Far Tortuga* (1975). (Courtesy of The Huntington Library, San Marino, California, JLP 429.)

London always strove to dispel the kinds of sea mysteries that he felt were embodied in the traditional romantic sea stories. In his autobiographical story, 'That Dead Men Rise Up Never,' for example, he confesses how he had felt the 'fibre-instinct of ten thousand generations of superstitious forebears,' and imagined that he saw the ghost of a shipmate (the bricklayer) whom he had helped bury at sea and whose bunk he had taken over despite the superstitious warnings of the other sailors.[20] The 'ghost' proved to be only the play of moonlight in *Sophia*'s rigging. Similarly, *The Cruise of the Snark* dispels Melville's dream of the paradise of Typee and the fabled 'horrors' of the leper colony at Molokai; and the name he chose for his famous boat, *Snark*, constitutes a grand, good-natured sneer at all who would romanticize the sea. The constant process of evolution was for him the essential reality in which he could express a kind of 'faith.' Its machine-like laws caused him to compare 'the mechanism of the primitive fighting beast' he saw in Wolf's body to 'the engines of a great battleship or Atlantic liner' (p. 102). And the same biological laws drove the engines of evolution that would perpetuate the race through the love of Maud and Humphrey, sentimental and comic as it is.

The Mutiny of the Elsinore (1914, written ten years after he had finished *The Sea-Wolf* and four years after he had abandoned the cruise of the *Snark*) is a far better sea novel than is generally recognized. Only Grant C. Knight has found it to be 'one of the best sea stories in our literature."[21] It is seldom read today, and when it is it is usually dismissed as an example of London's racism and his willingness late in his career to write anything that would sell. The novel does reflect the glare of Darwinian race theory that troubled the time, but the glare would soon lose its scientific luster and appear to be a 'ghastly mistake,' as Richard Hofstadter has explained.[22] There is no need to apologize for London's having fallen for the idea of 'The Yellow Peril.' The idea was widely accepted, and it seems likely that he would have come to deny it altogether. It is certain, at least, that in *The Mutiny of the Elsinore* he came to express a very jaded view of the biological destiny he had envisioned for his race. Whereas in 1904 he had smiled at the love of Maud and Humphrey; in 1913 he would deride it in a mood of black comedy, even if he could not deny it. By this time, his faith in love, as the mechanism of evolution, as well as his faith in the working class, had darkened: he had produced no son to carry on his line, and he could imagine a victory for the working class only in the distant future, after it had been ground under the totalitarian iron heel and roused to resistance.

London always knew that mutiny is a natural state,

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as they cut about the kid, [and] criticized the seamanship of their officers' (pp. 101, 108). Lawrence's comment is in *Studies in Classic American Literature* (New York, 1923; rpt. Garden City: Doubleday, 1953), p. 125.

20. *The Human Drift*, p. 46.

21. *The Strenuous Age in American Literature* (Chapel Hill: The University of North Carolina Press, 1954), p. 132. This is the extent of Knight's brief comment, contained in a footnote.

22. *Social Darwinism in American Thought* (New York: George Braziller, 1959), p. 202.

as it is for example among the sled dogs in *The Call of the Wild*.[23] And he was well aware of the history of mutiny among men at sea. His point in *The Mutiny of the Elsinore* is that the real mutiny in nature is not at all like what had been depicted in traditional sea fiction. Thus his view of this modern mutiny of 1913 emphasizes both the degenerated state of the once great sailing ships and their sailors, and the brutal but regenerative forces of evolution.[24] *Elsinore* is among the last of the old ships, and its officers, Captain West (accompanied by his daughter Margaret), and the mates, Mr. Pike and Mr. Mellaire, represent the old order. But the ramshackle crew is made up of 'gangsters,' 'broken men and lunatics.'[25] London's narrator, Pathurst, another gentlemanly writer like Humphrey Van Weyden, had gone to sea (as a passenger) because he has lost his 'taste for [his] fellow man,' for his career as an artist, and for women, whose 'almost ferocious devotion to the destiny of sex' had become disenchanting (p. 9). He is outraged that Captain West's daughter is aboard, and he wonders, with the reader, 'was there ever such a freight of human souls on the sea?' (p. 98)

Captain West is an old aristocrat, cool and detached, who reminds Pathurst of a 'plantation' owner, a 'samurai,' or a 'king'; he believes in God and is willfully blind to his mates' brutal exercise of authority (pp. 118, 77, 178). But this is his last voyage, for he dies before *Elsinore* rounds the Cape, his death brought on by his awareness that he had committed a blunder in navigation. Both of the mates are old, and both had served under a Captain Somers. London emphasizes this, for he was aware of the famous Somers affair, even though he could not have known that Melville, too, had worked with the idea in *Billy Budd*. According to London's plot, Pike had been a favorite of Captain Somers, who had given him license to exercise his severe discipline. But the mutinies Somers had suppressed inevitably overtook him; he was murdered, and Mr. Pike had vowed to spend the rest of his days at sea searching for the murderer. As it turns out, *Elsinore*'s second mate, with the suggestive name of Mellaire, was the murderer, and before he is found out, he warns Pike that the men 'won't stand for this driving . . . times have changed, . . . and laws have changed, and men have changed' (p. 272). Of course, the mutiny must come, and when it does, Pathurst repeatedly remarks that this modern mutiny is 'ridiculous and grotesque' (p. 335). Eventually Pike and Mellaire disappear, apparently having killed each other in a death struggle that took them overboard. With all the members of the old order now buried at sea, the grotesque mutiny becomes even more ridiculous. For Pathurst ascends to the 'high place' and, with the help of Margaret—the 'blind-instinctive race-mother,' masters the mongrel crew in one darkly comic scene after another (p. 100). At one point, Pathurst can 'scarcely keep from laughing' at his own 'ludicrous' exercise of brute authority, even as he relishes it under the 'cool, measuring eye' of Margaret; and another scene is an obvious parody of the 'crucifixion' and 'resurrection' (pp. 325-26, 359-60). Finally, it is clear that Margaret and Pathurst will see *Elsinore* safely in to Valpariso, where 'the law and order that men institute' is sure to provide a happy ending; and as the book closes, we see Margaret and Pathurst 'hidden in the darkness, clasped in each other's arms [talking] love and love plans' (pp. 369, 379). They will be married in Seattle, to which port the grotesque machinery of biology—'the destiny of sex'—will surely drive them. Pathurst, like many a good early twentieth-century hero, is happily caught by Margaret, one of the 'instinctive huntresses of men' who hunt 'with quite the same blind tropism that marks the pursuit of the sun by the sunflower' (p. 52). Pathurst's last remarks, uttered between loving kisses, reveal London's ironic view of it all: 'But I was stupid,' he remarks; ' "Oh, the weary, weary months" [he] complained'; 'I am a fool . . . I am aware of only one thing: I want you. I want you'; 'I stammered'; 'she confirmed'; 'I rattled on' (p. 378).

The one minor character aboard *Elsinore* whose point of view is reliable and with whom London is clearly sympathetic is Mulligan Jacobs, a pathetic creature of the abyss who 'might have been an artist, a philosophic poet, had he not been born crooked with a

23. Earle Labor, ed., *Great Short Works of Jack London* (New York: Harper & Row, 1965), p. 42.

24. London was the first major writer to lament the passing of the great sailing ships, a theme that would soon dominate American sea literature, as in O'Neill. See, for example, his remark in 'A Classic of the Sea': 'The life and conditions described in Dana's book have passed utterly away. Gone are the crack clippers, the driving captains, the hard-bitten but efficient foremast hands. Remain only crawling cargo tanks, dirty tramps, greyhound liners, and a sombre, sordid type of sailing ship. The only records broken today by sailing vessels are those for slowness. They are no longer built for speed, nor are they manned before the mast by as sturdy a sailor stock nor aft the mast are they officered by sail-carrying captains and driving mates' (pp. 102-3).

25. *The Mutiny of the Elsinore* (New York: P. F. Collier & Son, 1914), p. 51. Further references to this work appear in the text.

crooked back' (p. 372). Jacobs is well-read and is particularly fond of Shakespeare (to whose Edmund the Bastard he seems related), Zola, and Gorky. And he has the authority even to judge that 'Joseph Conrad was living too fat to turn out the stuff he first turned out' (p. 96). In short, he is London's ideal representative of the proletariat who *would* resist and eventually overturn the reigning order: 'He was a direct actionist. The mass strike was the thing. Sabotage, not merely as a withdrawal of efficiency, but as a keen destruction-of-profits policy, was the weapon' (p. 96). Drawing on such powers of bitter defiance, Jacobs successfully resists even Mr. Pike, and he stands in stark contrast to another of *Elsinore's* crew, the type of modern sailor with whom London had no sympathy, the 'sea lawyer.' Pathurst can see Jacobs only as a 'filthy, malignant rat' and wonder at his powers of defiance: 'How dare he—with no hope of any profit, not a hero, not a leader of a forlorn hope nor a martyr to God . . . how dare he . . . be so defiant?' (p. 98). London's personal commitment to Jacobs is evident in Pathurst's description of his face, its 'concentrated rage . . . on the verge of bursting into incandescence' (p. 98). In all of London's sea fiction, only Wolf Larsen's face glows with such promise, and in the flesh of these two beings—one, the supreme product of physical evolution; the other, the combustive source of an inevitable social revolution—we see reflected all that remains for London of the mystic powers that Melville had seen in St. Elmo's fire—St. Elmo, the patron saint of sailors. Thus it is that Mulligan Jacobs survives *Elsinore's* modern mutiny and puts the new Captain Pathurst in his place: 'An' who in hell are you an' your fathers? Robbers of the toil of men. I like them little. I like you and your fathers not at all. . . . To hell with you' (p. 371). There is no question that London shares the 'actionist' Jacobs' view of Pathurst, whose rise to brutal dominance parallels London's earlier fable of the 'cosmic process and purpose' of social evolution in *The Iron Heel* (1908).[26] Like Wickson, in that novel, Pathurst gloats in his superiority over the 'weaklings and the rejected' aboard *Elsinore:* 'My heels were iron as I gazed on them in their peril and weakness' (pp. 197-98). Thrilled to have found that 'culture has not emasculated me,' Pathurst envisions himself and his 'royal woman' holding 'the high place of government and command until our kind perishes from the earth.' But Jacobs' vision of him is prophetic: 'You'll end in the darkness,' he tells Pathurst, 'And your darkness 'll be as dark as mine' (pp. 336-37). It is a fitting end to the *Elsinore* affair that both Pathurst and Margaret remain 'hidden by the darkness' as they rattle on to Seattle.

Despite the grotesque and comic allegory that thickens almost unbearably toward the end of *The Mutiny of the Elsinore,* it is a very readable book with many of London's characteristically fine and authentic scenes of sailing in stormy seas and rounding the Horn. And, as an individual work in the tradition of American sea fiction, it is a landmark, rich with London's meaningful references to those who had sailed before him. Even Pathurst, the new American Captain whose course toward the obscure ends of biological regeneration and race destiny was only recently charted—even he has a possible forebear within the tradition in Melville's Captain Amasa Delano, whose dubious heroics in preserving white supremacy were also performed with his eyes closed. And, following Pathurst, later sea captains in American literature would reveal their authors' changing views of the Darwinian reality as it centers in sexual regeneration. The veil of Victorian tastes and editorial judgments that influenced London's presentation of the sex drama would be lifted, as theories of the aggressive race mother would give way to theories of the dominant, virile male; and the sea captain's authority would be associated—as it is in *To Have and Have Not* and *Far Tortuga*—not only with his seamanship, but with his ability to survive in the elemental sexual competition of life.[27]

If *Michael, Brother of Jerry* (completed a year before, and published a year after London's death) is remembered at all, it is dismissed as a 'mere dog story' or as London's exposé of the cruelty of trained animal shows.[28] But it is also the last novel in which London drew on the tradition of sea fiction in order to define man and his true place in nature. Following in the wake of *The Sea-Wolf* and the *Elsinore* mutiny, the first half of *Michael* projects London's ever-darkening allegory based on the 'Ship of Fools' idea. And as in *The Mutiny of the Elsinore,* he intensifies the allegory by centering it on critical references to the masterworks of nineteenth-century British and American sea literature, his

26. Watson, p. 121.

27. In *Far Tortuga,* Captain Raib's authority as a sea captain is associated with his virility: he has fathered eighteen children.

28. Watson, p. xiii.

constant purpose being, as it had been since *The Sea-Wolf,* to burn off the fog of romanticism that he felt had blinded the earlier writers. Here, in the dark months following the *Lusitania* incident, London wrote his versions of *Moby-Dick* and 'The Rime of the Ancient Mariner.'

He first signals his allegorical intent in chapter 9, where he introduces both the 'Albatross' and 'The Ancient Mariner.' But the 'Albatross' appears only briefly, as a warship—a 'British cruiser of the second class'; what had been the romantic symbol of Nature's inviolable mystic order is now for London a symbol of its actual order.[29] And London's twentieth-century 'Ancient Mariner' is no wretched sinner but an ingenious survivor. He presents himself under the false name of Charles Stough Greenleaf, a name he compounded from 'the pages of the history of the United States' (p. 103). As we learn later, the 'Ancient Mariner' had actually been born into a wealthy family and had 'trod the quarterdeck' as a junior officer before he left the sea, squandered his wealth, and was eventually disowned by his wealthy family. Then he spent six months in the poor house, where he learned his formative lesson—what it means to be 'shut out from life' (pp. 103-6). Renewed by this descent into the abyss, he reentered society as a common laborer, where he worked until he devised his present confidence game of leading wealthy investors on long futile sea searches for buried treasure he claims to have left on an uncharted island in the Pacific, after he had been shipwrecked on the vessel *Wide Awake* in 1852. He tells his tale convincingly, making it as 'literary' as possible. In this way, he makes a good living and does his money-hungry victims a favor; the long sea voyages are good for their health. This incredible 'Ancient Mariner,' a benevolent confidence man who embodies the full range of American economic experience, is clearly 'the finest man on board' London's 'Ship of Fools' (p. 90).

The ship's name, *Wide Awake,* is another of London's devices—as in the 'white logic' or the character called 'Burning Daylight'—to illuminate his fiction with the harsh reality of early twentieth-century thought and thereby to dispel the kind of 'imaginative orgies' he saw, for example, in *Moby-Dick.* Thus it is that in 1915 this 'ship of fools' has its own encounter with a whale, and London's rendering of its disastrous end is both realistic and darkly comic. The catastrophe is brought on by one of the wealthy treasure hunters, who becomes frustrated in his efforts to paint the sea. When he fails to reproduce the 'colour-delicacies' of 'seminary maidens,' he bursts into 'a violent rage.' Repeatedly on such occasions, he would tear up the attempted painting, 'stamp it into the deck, then get out his large-calibred automatic rifle, perch himself on the forecastle head, and try to shoot any stray porpoise, albacore, or dolphin. It seemed to give him great relief to send a bullet home into the body of some surging, gorgeous-hued fish, and turn it on its side slowly to sink down into the death and depth of the sea' (p. 94). Sometimes he would shoot at whales, despite the 'Ancient Mariner's' grave warnings that whales have been known to sink such 'full-rigged ship[s]' as the 'whaler *Essex*' (p. 95; again and again, as in this repeated reference to the *Essex* incident, London emphasizes his awareness of the tradition and his intention to extend it). But the frustrated painter will not believe such tales, of course; so he persists, eventually killing a helpless calf whose 'grief-stricken' mother turns on the ship. London's description of the calf's death, the cow's ramming and final sinking of the ship, and the crew's escape in the life boats—too lengthy to be fairly represented here—is in stark contrast with Melville's melodramatic sinking of *Pequod,* for the authors' purposes are different. Whereas Melville's whale, with all its power of divine retribution, sinks *Pequod* in an instant, London's eighty-foot cow whale is only an eighty-foot cow whale: she finally succeeds in sinking the ship, but she is badly wounded herself. And she takes no notice of the life boats: 'It was from the huge thing, the schooner, that death had been wreaked upon her calf; and it was upon the schooner that she vented the wrath of her grief' (p. 138). In contrast to *Moby-Dick,* there is no Manichean struggle here nor any cosmic justice: the whale's tormentor escapes with the rest of the crew. London's description of the scene is flatly realistic, but while his sympathy for the whale is clear, he portrays the crew's escape in black comic tones. In their panic, they argue over the limited space and end in overloading the boats with a 'clutter . . . of men, provisions, and property' (p. 133). When the first sailor ignores the captain's orders and, 'sea-bag in hand,' prepares to escape, another calls him 'a rat leaving the ship.' But the 'Ancient Mariner' voices London's judgment of the whole incident: 'We're all rats. . . . I learned just that when I

29. *Michael, Brother of Jerry* (New York: Macmillan, 1917), p. 59. Further references to this work appear in the text.

London looking out a porthole in a picture, dated 1905, that prefigures the end of Martin Eden (1909), when the hero slips to his suicide through one of *Mariposa*'s portholes. (Courtesy of The Huntington Library, San Marino, California, Album 14, No. 1757.)

was a rat among the mangy rats of the poor farm' (pp. 123-24). When the ship sinks, there remains 'only the whale, floating and floundering, on the surface of the sea' (p. 138). The survivors are picked up two days later by the passing steamer *Mariposa,* none the worse for their adventure. And when they arrive in San Francisco, no one believes their tale: 'Sunk by a whale? . . . Nonsense,' exclaim the cub reporters and moviegoers, for whom 'the real world and all its spaciousness does not exist' (p. 143).

The constant lure of 'the real world and all its spaciousness' that first drew the young Jack London to experience the sea for himself and to publish his story of a 'Typhoon Off the Coast of Japan' took him to sea once again in the last story he wrote. 'The Water Baby' (which he finished the month before he died) has been cited recently as evidence of London's 'rebirth' in 1916, his envisioning of a 'saving illumination' in the 'powerful energies' of the 'Jungian subconscious' that could 'triumph over the death-dealing wasteland.'[30] There is no question that London had become interested in Jung, that he was among the first American writers to be influenced by both Freud and Jung; but what he saw in Jung—as reflected in 'The Water Baby'—seems mainly to have corroborated the sense of reality he had already projected in *The Sea-Wolf.* The story brings together an old Hawaiian fisherman and a white narrator named Lakana (Hawaiian for London); they converse in the old man's canoe as he tends to his fishing lines. The story presents the vital old fisherman's songs of the creation as being more believable than the account given in Genesis; and London admits that they are as reasonable as his own version—i.e., one based on early twentieth-century science: it is 'funny,' he remarks, that the Hawaiian myth is true to what he knows of 'evolution,' 'astronomy,' and 'seismology,' which teach 'that man did run on all fours ere he came to walk upright, that . . . the speed of the revolution of the earth on its axis has diminished steadily, thus increasing the length of day, and that . . . all the islands of Hawaii were elevated from the ocean floor by volcanic action.'[31]

But the energy of this story does not derive simply from London's sense that ancient myth and modern science point in the same direction; rather, it derives—as is always the case in London's sea fiction—from what one can actually see with his own eyes. True, London senses a profound general wisdom in the old fisherman's humble sense that he is 'of little worth, and . . . not wise,' and his Jungian mythic sense that the sea is his mother, 'the milk giver, the life source' (p. 144). But the old fisherman's long tale of the Water Baby is baffling and comically unverifiable, despite his claim to 'know for a fact.' The story's undeniable 'facts' and its most intensely memorable imagery derive from direct observation, after Lakana bares his 'eyes to the stab of the sun['s]' 'glare on the water'; then he watches the vital old fisherman dive for a large squid:

I saw him steady himself with his right hand on the coral lump, and thrust his left arm into the hole to the shoulder.

30. James I. McClintock, *White Logic: Jack London's Short Stories* (Grand Rapids, Michigan: Wolf House Books, 1975), pp. 172-73.

31. *On the Makaloa Mat* (New York: Macmillan, 1919), pp. 144-45. Further references to 'The Water Baby' are to this edition and are included in the text.

Half a minute elapsed, during which time he seemed to be groping and rooting around with his left hand. Then tentacle after tentacle, myriad-suckered and wildly waving, emerged. Laying hold of his arm, they writhed and coiled about his flesh like so many snakes. With a heave and a jerk appeared the entire squid, a proper devilfish or octopus.

But the old man was in no hurry for his natural element, the air above the water. There, forty feet beneath, wrapped about by an octopus that measured nine feet across from tentacle tip to tentacle tip and that could well drown the stoutest swimmer, he cooly and casually did the one thing that gave him his empery over the monster. He shoved his lean, hawk-like face into the very center of the slimy, squirming mass, and with his several ancient fangs bit into the heart and the life of the matter (pp. 147-48).

This compelling scene is one of the 'great moments of living' in Jack London's sea fiction and, indeed, in the tradition of American sea fiction. It depicts the essential biological struggle that London had always recognized, and not at all 'the struggle between the most fundamentally human desire for salvation and the most fundamentally human fear of damnation' (McClintock, p. 174). The myths of 'rebirth,' 'salvation,' and 'damnation' can never survive the harsh light of London's 'white logic.' For London, there is only the 'elemental stuff itself,' the vital life strength like that embodied in Wolf Larsen's flesh; and even if it 'lingers' as in a 'shapeless lump of turtle meat and recoils and quivers from the prod of a finger,' it will surely cease.

Through Jack London, the tradition of American sea fiction survived the passing of the great sailing ships. Sensing and responding to the sea's timeless influence on our lives, he was certainly ahead of his own time in retrieving for the tradition and our culture in general a sense of Melville's permanent value. And like his fellow writers before and after him in the tradition, he was of his own time in celebrating the ecstasy of survival, 'the great moments of living' that he had known personally at sea and that revealed to him the essential reality: for the species, the constant lift and forward plunge of evolution; for the individual, only that 'the body shall be cast into the sea.' To Maud Brewster's question, 'And immortality?' he would answer with Wolf Larsen, 'Bosh!' But it is revealing of London's feeling for the sea and for his great sea captain that Wolf Larsen's last word is not actually 'bosh,' as Humphrey reports it to be. A full week later, Wolf uttered his actual last word, 'Yes,' in response to the question, 'Are you all there?' (pp. 248-250). Always—even at the moment of his own entry into 'the vastness and profundity of the quiet and dark' that finally overtakes Wolf—always, Jack London affirmed his readiness to go to sea, to search for and perhaps grasp yet another of the 'great moments of living' that he found at sea and in his fellow writers' tales of the sea: 'The last work in which he read that night' he died, as Charmian reported, 'was "Around Cape Horn, Maine to California in 1852, Ship *James W. Paige*." '[32]

32. *The Book of Jack London* (New York: Century, 1920), II, 385.

Bert Bender is an associate professor in the Department of English at Arizona State University, where he has been teaching American literature since 1971. Bender plans to soon publish a history of American sea fiction since Herman Melville's Moby Dick *(1851).*

Book Reviews

ARCHIBALD R. LEWIS and TIMOTHY J. RUNYAN, *European Naval and Maritime History, 300-1500* (Bloomington: Indiana University Press, 1985). 9½" x 6¼", cloth, xiii + 192 pages, 53 illustrations, 9 maps, bibliographical note and suggested readings, index. $18.75.

This small volume successfully attempts to present on a popular level a scholarly but easily-read summary of the history of European naval and maritime power during the Middle Ages. A brief introductory chapter on the situation in the late Roman world is followed by three chapters devoted respectively to Byzantine, Muslim and Latin naval and maritime power in the medieval Mediterranean. The book then turns to northern waters with a chapter on the Irish, Frisians, and Vikings and another on the period of the English Anglo-French Empire and the Hanseatic League. The historical summary closes with a chapter on the rise of Iberian sea power culminating in the Portuguese and Spanish voyages of discovery.

The authors stick closely to their subject: naval and maritime power, the changing nature and patterns of this power through time, and the factors underlying these changes. The ships, seafaring practices, and commercial practices and goods involved are discussed in no more detail than is required by the primary subject at hand. There is little to criticize as far as the historical accuracy of the book is concerned. One might only note that events are sometimes so briefly summarized as to produce a more conservative picture of the historical role of naval and maritime power than would otherwise have been the case. Thus, to cite just one example, the role of naval power in the Muslim conquest of North Africa, seen as an important factor in Lewis' *Naval Power and Trade in the Mediterranean*, is virtually passed over in the present book. Brevity, however, is also the strength of this book, whose scale permits the reader to retain in sharp focus an invaluable panoramic view of medieval European naval and maritime history.

The authors do not succeed as well when their subject is ships. Descriptions of ships and of developments in naval architecture are very much subordinated to the tightly-constructed historical narrative with the result that they are often disorganized and less than minimally sufficient, and sometimes even erroneous. Particularly distressing are allusions to cogs and Viking ships with two steering oars and Venetian galleys with three *tiers* of oars, and instances where the carrack and caravel are confounded. Assertions that Greek fire was a combustible mixture of phosphorus and saltpeter and that the thirteenth-century Genoese ship pictured on the book's cover and page 73 had three decks (rather than two decks and *corredoria*), although based on the opinion of certain scholars, are quite questionable. Equally questionable is the implication that the advances in navigation by the thirteenth century in the Mediterranean significantly increased open-water sailing, since there is solid evidence for substantial open-water sailing in ancient and earlier medieval times as well. The Anglo-Saxons are pictured migrating across the North Sea to Britain in rowed ships without sails such as the Sutton Hoo ship. While it certainly appears true that *warships* did not have sails in these waters prior to the Viking Age, Detlev Ellmers, the eminent authority on early northern-European watercraft, has recently presented good indirect evidence that there were merchant ships with sails in these same waters substantially earlier.

In a final chapter, the authors conclude that European warships and merchant ships, naval tactics, and naval-maritime strategies in early modern times were essentially creations of the medieval period. (It is precisely for this reason that every student in the nautical archaeology program at Texas A&M is required to study medieval seafaring.) My sole criticism of their conclusions would be that the Byzantine-Moslem contribution to early modern naval tactics is understated. A comparison of tenth-century Byzantine manuals on naval tactics with sixteenth-century practice reveals surprisingly little change in the interim despite the introduction of cannon; the very same tactics employed by the Venetians in the amphibious assault on Constantinople in 1204 were used by the Moslems at Sa-

lonika and Naples in the tenth century; and the convoying of merchant ships was already a well-established routine by the early eleventh century, at least in Moslem waters, as the Geniza documents make clear.

The authors present an historical outline ideal for those who are just embarking on a study of medieval ships and seafaring. Suggested further readings on the subject matter in each chapter are extensive and up-to-date. The book will be the first reading required in my own seminar course on medieval seafaring.

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David R. MacGregor, *Schooners in Four Centuries* (Annapolis, Maryland: Naval Institute Press, 1982). 9″ x 7″, hardbound, 144 pages, 148 black and white illustrations, index, and bibliography. $15.95.

Mr. MacGregor has here attempted to describe the rise and eventual decline of the schooner rig from its obscure North Sea origins sometime prior to 1600, through its use on fishing vessels and small traders bringing perishable cargo such as fruit to European markets, to its final glory in huge vessels sporting as many as seven masts around 1900, primarily in the United States. Finally, he takes a brief look at schooners today: school ships, hulks and replicas such as the *Pride of Baltimore*. MacGregor admits to an obsession 'with the study of hull-form,' and he reproduces a number of lines plans which illustrate how the schooner hull evolved from the early, very apple-cheeked Dutch coasters to the much sharper yacht *America* or the huge six-masted *Wyoming* of 1909. There are a number of excellent photographs as well.

However, *Schooners in Four Centuries* is far from being a definitive work on the subject, and one of its problems is that MacGregor is prone to make flat assertions when the facts simply do not support them, and indeed when they may be contradicted by his own evidence. For example, on page 11 he says, 'Of course schooners can have two or more masts but there *must be a gaff sail* on each mast and this should be the principal sail on each mast.' (Italics mine.) Unfortunately, there have been a number of modern schooners such as the *Blue Dolphin*, with her 100-foot-tall Marconi mainsail, and in fact McGregor includes photographs of similar examples such as the *Malcolm Miller* and *Brilliant*.

On page 109 we read that, 'Included in this period (i.e. 1898-1908) was the production of all the ten six-masted schooners ever launched.' However, on page 115 he lists the ten, beginning with the *George W. Wells* of 1900, and ending with the *Wyoming* of 1909. And it *may* be that the word 'schooner' itself derives from the apocryphal remark made at a 1713 Gloucester launching, but the philologist, Eric Partridge, in his classic book, *Origins*, held that like so many of our nautical terms 'schooner' was Dutch, of German ancestry, admittedly an argument which will never be completely settled.

There are some curious omissions in the book as well. In his section, 'Schooners Around the World,' MacGregor touches briefly on the French North Atlantic *morutiers*, calling them 'a modified version of a Gloucester fishing schooner,' without mentioning that until the early 1950s, the Labrador coast was crowded with small (45 foot or so) local schooners whose clipper bows hinted at an Essex model some generations earlier. In addition, there is still an extant, though sadly declining coastal trade in schooners along the inland passage on Chile's west coast. The little schooner *Ilen* is still, incidentally, carrying sheep and freight around the Falkland Islands.

One matter on which Mr. MacGregor does not touch at all is the fact that just as the schooner itself was becoming obsolescent as a commercial type of vessel, schooner-building technology took a quantum leap forward with the introduction of Crowninshield's system of longitudinal construction. MacGregor includes a photograph of the two schooners abandoned at Wiscasset, Maine, without mentioning that the *Luther Little* is an almost classic example of the same sort of 'traditional' wooden shipbuilding which produced the Downeasters, while *Hesper*, built in 1918 at the Crowninshield Yard, relies not on massive hanging knees but equally impressive shelf and clamp construction. Sadly, it was an innovation which came too late to be of much use!

Finally, Mr. MacGregor quotes the late John F. Leavitt as calling the so-called windjammers 'maritime ghosts.' Though he predicts that they will 'increase to haunt us in the future,' he neglects to mention that schooners such as the *Isaac H. Evans*, which will cel-

ebrate its 100th birthday next year, are far from ghost-like as they keep very much alive the sailing *and* schooner-building tradition.

NICHOLAS DEAN

North Edgecomb, Maine

JAMES DODDS and JAMES MOORE, *Building the Wooden Fighting Ship* (New York: Facts on File Publications, 1984). 10" x 10", cloth, 128 pages, illustrations, bibliography. $19.95.

Since 1960 when George Bass and other pioneer marine archaeologists began to use aqualungs in conjunction with careful archaeological methodology there has been a steady increase in our knowledge and understanding of ancient wooden ship construction. This in turn has led to a greater awareness of the need to study and preserve the lore of the shipwright's craft as it was practiced in more recent times and particularly just before the dawn of the Industrial Revolution. Preserved ships such as the Swedish *Vasa,* H.M.S. *Victory* and the American frigate *Constitution* provide us with living links to this era and there is much archival material in the forms of draughts, financial records and accounts, contracts, letters and other assorted documents to be sifted and collated by maritime historians who have become alerted to the value and importance of preserving the shipbuilding technology of the early modern period.

Building the Wooden Fighting Ship is a volume that clearly reflects the new appreciation for maritime archaeology. Although its scope is somewhat more limited than its title would suggest, the idea of relating and illustrating the step-by-step construction of a typical 74-gun ship-of-the-line of 1760 from the drawing up of the initial contracts, called 'treaties' in those days, to the final masting and rigging and preparation for sea is a good one. Each major stage of construction is taken in its proper turn and described in detailed but comprehensible prose. The authors have taken particular care in illustrating tools and artifacts, describing the skills and methods of the artisans and even hinting at some of the occupational hazards they faced. Also included are thorough discussions of the materials that went into the ship's fabric from English oak and Baltic pine to mixtures of horse and goat hair used for caulking seams below the water line. Most compelling of all are descriptions of some of the incredibly laborious tasks that had to be done entirely by hand with primitive tools powered solely by human muscles. For example, bolting the various components of the keel together required the boring of holes that varied from five to thirteen feet long with simple pod augers. It took a shipwright and his assistant one week of steady work to do one such hole and several more days to drive the bolts, which were commonly 1/16" larger in diameter downwards through solid oak so that they could be clenched over an iron washer or plate at the bottom.

To clarify and elaborate these points the authors have included both historical and modern illustrations in some profusion. The material drawn from archival sources is typical of that genre and generally well chosen. The modern drawings are mainly the work of co-author James Dodds and while clear and painstakingly authentic they are somewhat lacking in elegance. There is too much heavy black line and shading and the author/artist's rendering of water and ground yields a generally grubby and smudged appearance, especially in his yard scenes. All of the illustrations are done in monochrome and the lack of color simply adds to the generally gloomy effect. Nevertheless, the overall impact of this documentary artwork is most enlightening and one comes away from a study of the drawings with a clear idea of how the various parts of a ship were assembled and how the vessel that resulted was equal to all of the stresses and strains of battle and the elements.

Once all of this construction lore and detail has been related it is rounded out by a brief description of the operational life of the subject vessel. H.M.S. *Thunderer,* launched at the Royal Dockyard at Woolwich in March 1760, had a relatively unspectacular career serving in both the Mediterranean and Channel fleets. In the years 1775 to 1779 she underwent a fairly comprehensive rebuilding and was lost in a hurricane while serving on the West Indies Station in October 1780.

JAMES E. VALLE, PH.D.

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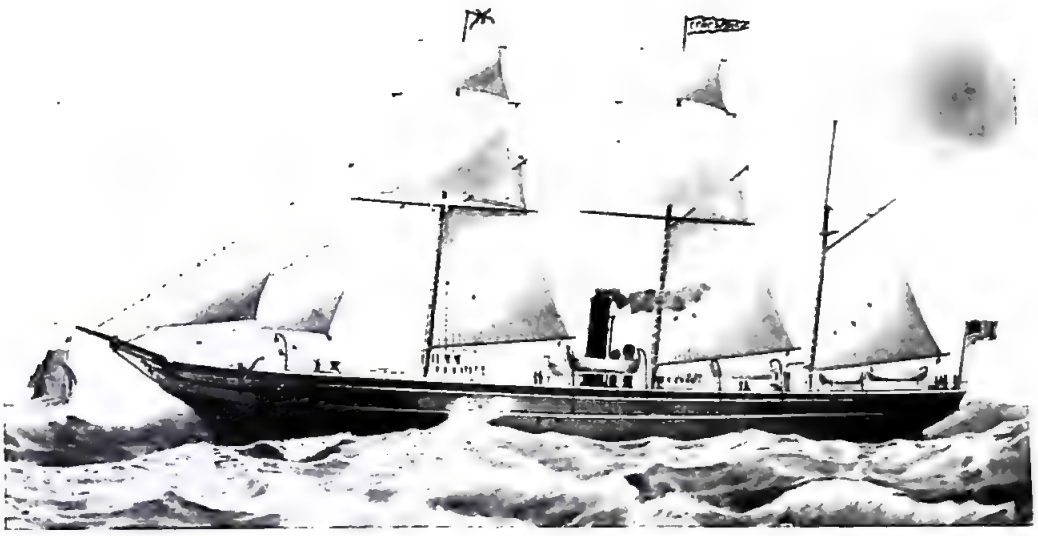

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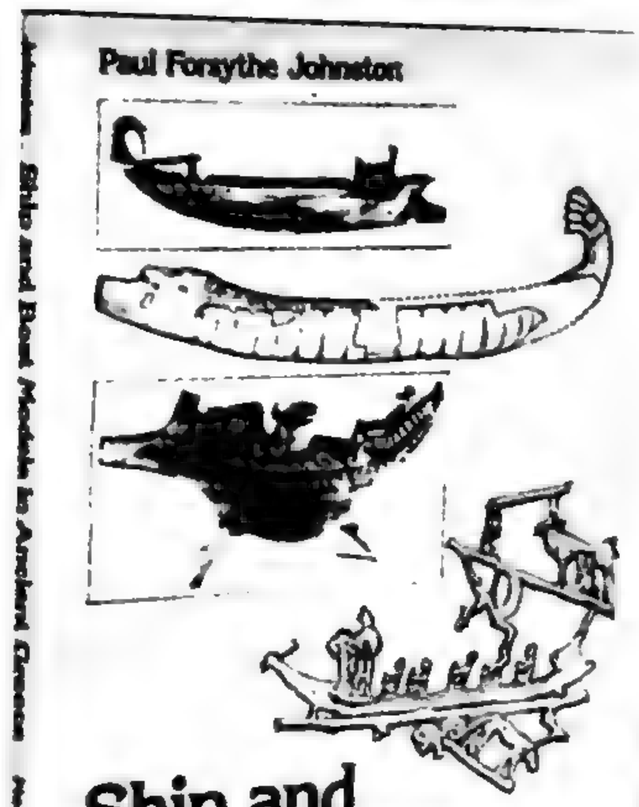

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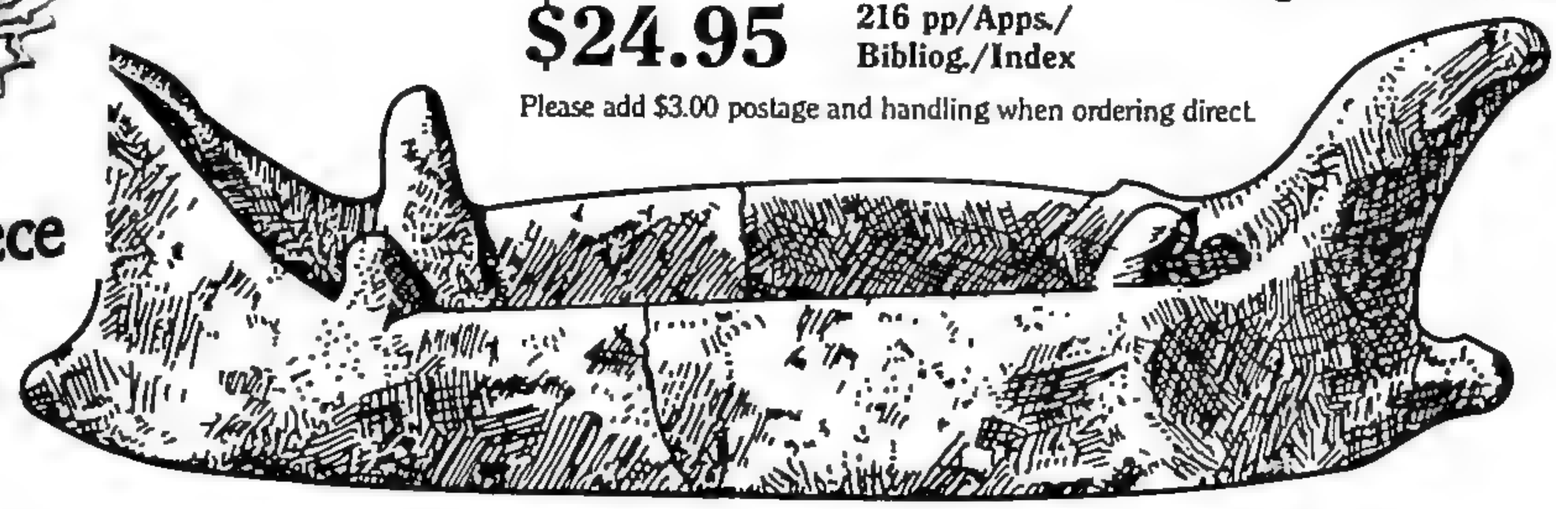

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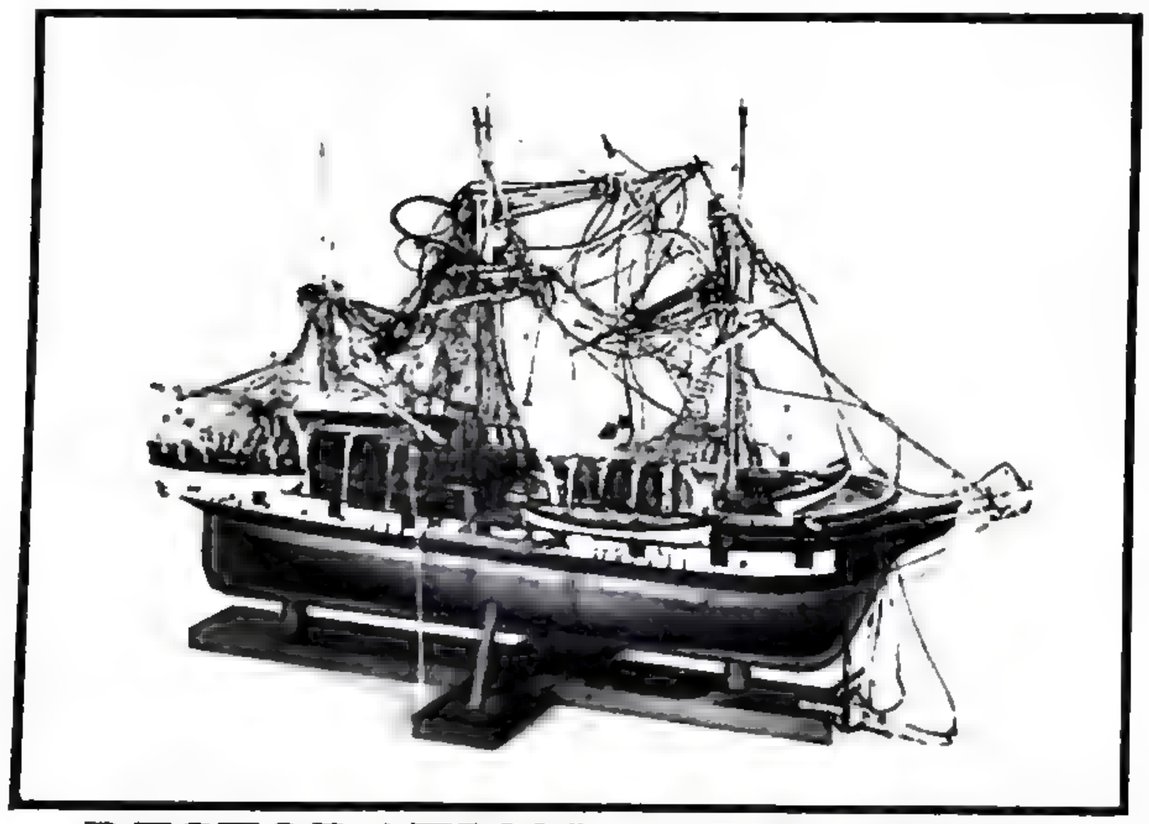

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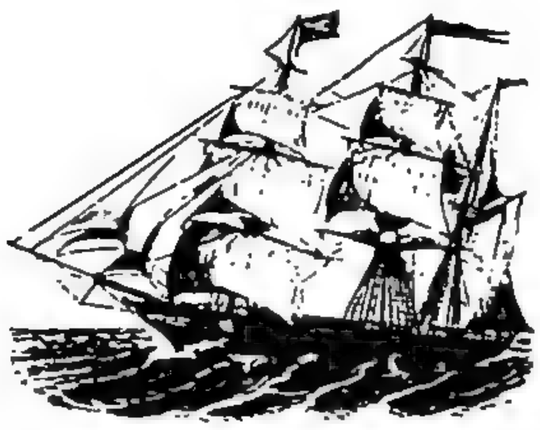

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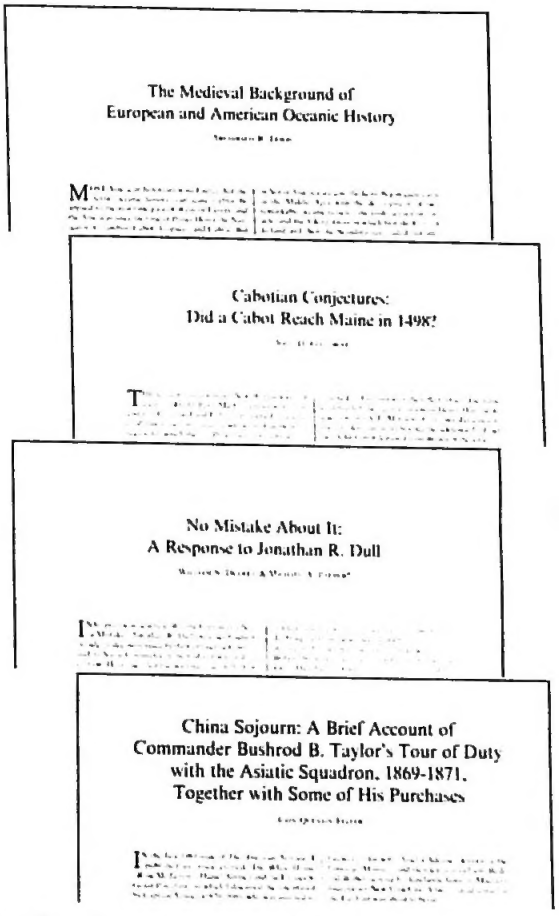
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